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**REPORT TO THE SUBCOMMITTEE
ON INVESTIGATIONS AND REVIEW
HOUSE COMMITTEE ON PUBLIC
WORKS AND TRANSPORTATION
BY THE COMPTROLLER GENERAL
OF THE UNITED STATES**



**Implementing The National
Water Pollution Control
Permit Program:
Progress And Problems**

Environmental Protection Agency

Before the national permit program can
become the key to cleaning up the Nation's
waterways, the Agency needs to overcome
major problems, including

- having to issue thousands of additional permits,
- resolving lawsuits challenging a majority of the industrial effluent limitation guidelines,
- adjudicating appeals of permit conditions by many dischargers,
- tracking adherence to permit conditions by the thousands of dischargers and taking enforcement actions against noncompliers, and
- reissuing expiring short-term municipal permits and modifying almost all other municipal permits to reflect achievable or changing permit requirements.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-166506

The Honorable Jim Wright, Chairman
Subcommittee on Investigations and Review
Committee on Public Works and
Transportation
House of Representatives

Dear Mr. Chairman:

As you requested on December 10, 1974, we are reporting on the progress and problems of the Environmental Protection Agency in implementing the national water pollution control permit program.

As agreed to by your office, we obtained the Agency's written comments on a draft of this report (see app. I) and discussed pertinent sections of the report with the water pollution control agencies of the four States included in our review.

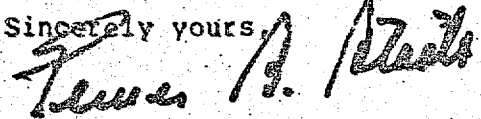
The Agency stated that in general, the report presents an accurate assessment of the overall problems which have affected the permit program. The Agency also said that it had recognized the major program inadequacies and is currently rectifying them through policy changes and revised regional guidance.

We invite your attention to the fact that this report contains a recommendation to the Administrator of the Environmental Protection Agency which is set forth on page 11. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House and Senate Committees on Government Operations not later than 60 days after the

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date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report. We will be in touch with your office in the near future to arrange for release of the report so that the requirements of section 236 can be set in motion.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Thomas A. Smith". The signature is written in a cursive, slightly slanted style.

Comptroller General
of the United States

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ABBREVIATIONS

EPA	Environmental Protection Agency
GAO	General Accounting Office
NPDES	National Pollutant Discharge Elimination System
OMB	Office of Management and Budget

COMPTROLLER GENERAL'S
REPORT TO THE SUBCOMMITTEE ON
INVESTIGATIONS AND REVIEW
COMMITTEE ON PUBLIC WORKS AND
TRANSPORTATION
HOUSE OF REPRESENTATIVES

IMPLEMENTING THE NATIONAL
WATER POLLUTION CONTROL
PERMIT PROGRAM: PROGRESS
AND PROBLEMS
Environmental Protection
Agency

D I G E S T

Although progress has been made, the Environmental Protection Agency faces major administrative and program problems that need to be overcome before the national water pollution control permit program can become the key to cleaning up the Nation's waterways as intended by the Congress.

It is questionable whether all industrial and a majority of municipal dischargers will be able to construct abatement facilities necessary to meet water quality requirements by July 1, 1977, as required by the Federal Water Pollution Control Act Amendments of 1972.

The Subcommittee may therefore wish to propose legislation giving the Agency the authority to extend on a case-by-case basis the July 1, 1977, deadline. (See pp. 30 and 42.)

STATUS OF PROGRAM AND ADMINISTRATIVE PROBLEMS

As of June 30, 1975, the Agency or the States had issued permits to 36,800 dischargers, or 69 percent of the 33,300 industrial and 19,700 municipal applicants. The Agency, however, faces an almost impossible task if, as a result of a U.S. district court decision, it has to issue individual permits for an estimated 1.8 million animal feedlots, 100,000 stormwater discharge point sources, and a large but undetermined number of agricultural and silvicultural activities. (See pp. 4 to 7.)

GAO suggested that the Subcommittee propose legislation giving the Agency the authority to exempt dischargers which have a minimal adverse impact on water quality from obtaining permits. (See p. 11.)

The Agency has also had limited help from the States--only 27 States have assumed responsibility for the permit program as of December 1975--and has experienced problems in establishing a computer-based system to monitor dischargers' compliance with permit conditions. (See pp. 7 to 10.)

GAO recommended that the Agency encourage and assist the States in assuming the permit program. The Agency agreed. (See p. 11.)

INDUSTRIAL PERMIT PROGRAM FACES MAJOR PROBLEMS

The effluent discharge limitations in 50 industrial permits GAO reviewed were, for the most part, not based on final guidelines setting forth uniform effluent limitations for industrial dischargers by category or class as intended by the Congress. The guidelines were not published in time to be used or were not applicable. (See pp. 14 to 17.) (See app. II for examples of industrial permits included in the GAO sample.)

Lawsuits--145 as of June 30, 1975--challenging effluent limitations guidelines have required Agency staff time to prepare defenses of technical issues, taking away time staff could spend on preparing guidelines, and may adversely affect the permit program and the likelihood of achieving water quality goals if some of the challenges are successful. (See pp. 18 to 20.)

Nationwide, adjudicatory hearings requests for modification of 450 (23 percent) of the 2,000 Agency-issued major industrial permit were pending, as of September 12, 1975. Until the challenges are resolved, abatement action for those elements in dispute may be delayed, and if delayed long enough, it may be difficult for the discharger to meet his permit conditions by July 1, 1977--the deadline required by the 1972 amendments. (See pp. 21 to 26.)

Some industrial dischargers were not adhering to their abatement schedules, effluent limitations, or reporting requirements. It is too early to tell whether enforcement of industrial

permit conditions will be effective. (See pp. 26 to 29.)

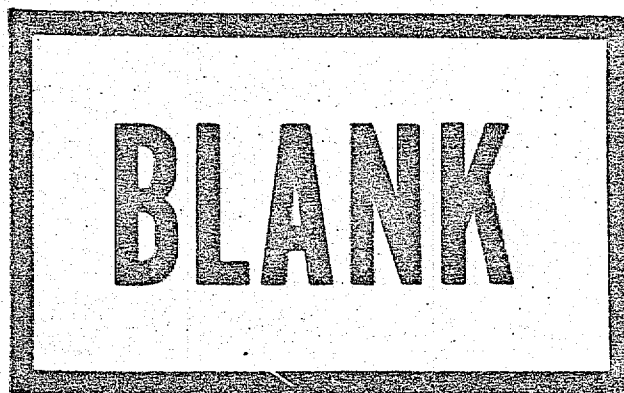
PERMIT PROGRAM WILL NOT INSURE
MUNICIPALITIES' COMPLIANCE WITH
REQUIREMENTS

The Agency estimated that almost all municipal permits will need to be either reissued or modified in fiscal year 1977 because of various reasons. (See pp. 31 and 32.)

The Agency estimated that 56 percent of 16,700 municipal dischargers nationwide will not meet water quality requirements by July 1, 1977, as required by the 1972 amendments. The availability of Federal construction grant funds is the principal factor--not permits--in getting municipalities to construct or upgrade waste water treatment facilities to abate pollution. (See app. III for examples of municipal permits included in the GAO sample.)

The Congress provided \$18 billion in Federal funds to finance 75 percent of the construction of publicly owned waste water treatment facilities for fiscal years 1973-75. Federal funding had proceeded at a slow pace--only \$6.6 billion had been obligated at June 30, 1975, and only \$1 billion spent--and estimated funds needed to construct facilities--\$342 billion--far exceeded funds provided. (See pp. 31 to 38.)

The Agency and the States do not plan to take enforcement actions against municipalities who cannot meet the July 1, 1977, deadline because of a lack of Federal funding and, therefore, the permit as an enforcement tool is of limited benefit. The Agency has recommended to the Office of Management and Budget that the deadline be extended on a case-by-case basis. (See p. 40.)



CHAPTER 1

INTRODUCTION

In a December 10, 1974, letter, the Chairman, Subcommittee on Investigations and Review, House Committee on Public Works and Transportation, asked us to review the status and reasonableness of permits issued by the Environmental Protection Agency (EPA) and the States under the National Pollutant Discharge Elimination System (NPDES) established by the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251).

FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972

The 1972 amendments declare that the objective of the Federal Water Pollution Control Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To achieve this objective it established the following major goals, policies, and requirements.

Goals

The goals are to:

- Eliminate by 1985 the discharge of pollutants¹ into navigable waters.
- Achieve by July 1, 1983, wherever attainable, an interim goal of water quality which provides for protecting and propagating fish, shellfish, and wildlife and which provides for recreation in and on the water.

Policies

The policies are to:

- Prohibit discharge of toxic pollutants in toxic amounts.

¹The amendments define the term "pollutant" as dredged spoil; solid waste, incineration residue; sewage; garbage; sewage sludge; munitions; chemical wastes; biological materials; radioactive materials; heat; wrecked or discarded equipment; rock; sand; cellar dirt; and industrial, municipal, and agricultural waste discharged into water.

- Provide Federal financial assistance to construct publicly owned waste water treatment works.
- Make a major research and demonstration effort to develop the technology necessary to eliminate the discharge of pollutants into navigable waters, waters of the contiguous zone, and oceans.

Requirements

The requirements are to:

- Achieve by July 1, 1977, effluent limitations¹ for point sources² other than publicly owned treatment works by applying the best practicable control technology currently available as defined by the Administrator, EPA, or any more stringent limitations necessary to meet water quality standards.
- Achieve by July 1, 1983, effluent limitations for point sources other than publicly owned treatment works by applying the best available technology economically achievable as defined by the Administrator, EPA.
- For publicly owned treatment works, apply
 1. Secondary treatment for all facilities approved for construction before June 30, 1974, or in existence on July 1, 1977, or the technology necessary to meet more stringent limitations established to achieve water quality standards or standards that are part of a schedule of compliance by July 1, 1977.
 2. Best practicable waste treatment technology by July 1, 1983.

¹According to the act, restrictions established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents discharged from point sources.

²According to the act, any discernible, confined, and discrete conveyance from which pollutants are or may be discharged.

For the purpose of adopting or revising effluent limitations, the amendments required EPA to publish by October 18, 1973, regulations giving effluent limitation guidelines for classes and categories of industrial dischargers. The amendments also required EPA to publish information on secondary treatment by December 18, 1972, and on available alternative waste treatment techniques and systems for publicly owned treatment works by July 18, 1973.

The NPDES permit program is the means for enforcing effluent limitations and insuring that requirements of the 1972 amendments for controlling discharges and complying with water quality standards are met. It is illegal to discharge pollutants into the Nation's navigable waters without an NPDES permit. Dischargers are subject to civil penalties up to \$10,000 a day for violations of permit conditions. Willful or negligent violations could bring a fine up to \$25,000 a day and 1 year in prison for the first offense and up to \$50,000 a day and 2 years in prison for subsequent violations.

EPA and States with EPA-approved programs issue permits with fixed terms, not exceeding 5 years. The permits specify effluent limitations, compliance time schedules, self-monitoring, and reporting requirements. Before a Federal permit is issued, the State in which the discharge originates is required to certify that the discharge will comply with applicable statutory requirements.

SCOPE OF REVIEW

Our review of the NPDES permit program was conducted at EPA headquarters and in regions III and V. We reviewed 120 municipal permits and 50 industrial permits issued to dischargers in four States--Delaware, Pennsylvania, Illinois, and Wisconsin.

We interviewed officials at EPA headquarters in Washington, D.C.; EPA regional offices in Chicago (region V) and Philadelphia (region III); and State water pollution control agencies or departments in Dover, Delaware; Springfield, Illinois; Harrisburg, Pennsylvania; and Madison, Wisconsin. We also contacted and obtained information from 29 municipalities or their consulting engineers and 17 industrial dischargers and examined pertinent Federal and State agencies' documents, records, and other literature.

CHAPTER 2

STATUS OF PROGRAM AND ADMINISTRATIVE PROBLEMS

As of June 30, 1975, EPA and the States processed and issued about 36,800 NPDES permits to industrial and municipal dischargers, or 69 percent of the 53,000 dischargers who submitted applications. An EPA official told us on July 31, 1975, that there was no firm target date for issuing the remainder of the permits. EPA's policy was to concentrate its permit issuance effort on major dischargers. By emphasizing issuing permits to major dischargers, minor dischargers will have less time to meet the July 1, 1977, deadline.

Although 69 percent of the applicants have been issued permits, EPA faces problems or has had problems administering the NPDES permit program because:

- A U.S. district court ruled that all point sources of discharge must obtain a permit, which means an estimated 1.86 million animal feedlots, 100,000 storm water discharge point sources, and a large, but undetermined, number of agricultural and silvicultural¹ activities may have to be issued permits at a cost in excess of \$1 billion.
- EPA has had to retain most of the administrative workload in processing, issuing, monitoring, and enforcing permits, because only 24 States as of June 30, 1975, had assumed responsibility for administering the program.
- EPA was unable, after spending \$2.3 million to develop an extensive computer-based system that would keep track of and analyze data, to determine whether dischargers were adhering to abatement actions and effluent limitations.

PERMITS ISSUED

EPA established a goal of issuing all permits by December 31, 1974, because the 1972 amendments provided immunity from prosecution until that date to any discharger who had applied for a permit but had not been issued one if the application had not been administratively completed.

¹The cultivation of forest trees.

However, EPA stated in its March 1974 Water Quality Strategy Paper that since administrative or technical problems might preclude reaching this goal, permit issuance efforts should concentrate on major dischargers and on those for which a lengthy abatement schedule was expected.

The following table compares permit applications and issuances for major and minor industrial and municipal dischargers as of June 30, 1975.

	<u>Major</u>	<u>Minor</u>	<u>Total</u>
Industrial dischargers:			
Applications received	3,138	30,204	33,342
Permits issued:			
Number	2,797	17,294	20,091
Percent	89	57	60
Permits unissued:			
Number	341	12,910	13,251
Percent	11	43	40
Municipal dischargers:			
Applications received	2,930	16,729	19,659
Permits issued:			
Number	2,714	13,950	16,664
Percent	93	83	85
Permits unissued:			
Number	216	2,779	2,995
Percent	7	17	15

THOUSANDS OF ADDITIONAL DISCHARGERS MAY
NEED PERMITS

As a result of a Federal district court ruling, EPA may have to issue thousands of permits to previously exempted dischargers.

The U.S. District Court for the District of Columbia ruled on March 24, 1975, (Civil Action 1629-73) that all point sources must obtain a permit under section 402 of the act and that EPA has no discretion to exempt classes or categories of sources from the NPDES permit program. In a final judgment on June 10, 1975, the court ordered that, within specified time frames ranging from 9 to 12 months, EPA publish final regulations extending the NPDES permit program to include all point sources in the concentrated animal feeding operation category, separate storm sewer category, agriculture category (other than concentrated feeding operations), and the silviculture category.

EPA's policy had been to exempt from the permit program an estimated 100,000 point sources of discharge from separate storm water sewers. Further EPA exempted small dischargers, including small feedlots, and agricultural and silvicultural activities which were not considered to be major contributors of pollution. Also, a large number of privately owned sewage treatment plants had not applied for permits.

According to an EPA official, in May 1975 EPA requested the Department of Justice to appeal the court's ruling. As of September 16, 1975, EPA had not been told whether the Department planned to appeal the ruling.

EPA exempted from the requirement for obtaining discharge permits feedlots having fewer than specified numbers of animals. For example, feedlots which handle fewer than 1,000 slaughter steers and heifers or 10,000 sheep at one time were not required to obtain permits. EPA justified this action on the basis that such feedlots have a minimal adverse impact on water quality and the cost of processing and issuing permits to all feedlots would be prohibitive.

EPA estimated that about 14,000 of 1.86 million feedlots would be required to obtain permits pursuant to its criteria. EPA also estimated that the cost of processing and issuing permits to all feedlots would exceed \$1 billion. An EPA official said that EPA had no data on the number of agricultural and silvicultural point sources of discharge.

EPA officials estimated that there may be as many as 100,000 privately owned sewage treatment plants, and most had not filed applications for permits. These treatment plants serve residential housing developments, trailer parks, commercial and manufacturing enterprises, and public institutions. In a November 22, 1974, memorandum, EPA officials concluded with respect to privately owned sewage treatment plants, that:

"The large number of facilities means we have a major nonfiler problem. Substantial EPA and State resources will be needed to obtain applications from and issue permits to such facilities, even if we employ streamlined techniques.

"The facilities are by no means all small package plants. A proportion are fairly large, and many are clustered around urban areas. Good operation and maintenance of large and clustered facilities is essential to avoid adverse impact on water quality.

"The vast majority of these facilities are not scheduled for replacement by a regional facility. They are permanent.

"The number and nature of existing facilities support the conclusion that there are thousands of new ones each year which would fall into the category of new sources if we promulgated new source performance standards for non-Federally funded sewage treatment facilities."

SLOW STATE ASSUMPTION OF PERMIT PROGRAM

The 1972 amendments state that it is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate water pollution. The amendments also provide that the States could assume the administration of the permit program subject to EPA approval. The slow State assumption has placed burdens on EPA in processing, issuing, monitoring, and enforcing permits.

As of June 30, 1975, EPA had authorized 24 States--1 in fiscal year 1973, 14 in 1974, and 9 in 1975--to issue discharge permits. Of the approximately 36,800 permits issued to industrial and municipal dischargers through June 30, 1975, EPA issued about 23,700, or 64 percent. Further, 14 States with approved programs do not have legislative authority to enforce permits issued by EPA before the States took over the program, and EPA will have to enforce these permits.

In addition to the 24 States with approved permit programs, EPA had under final review the proposed programs of 3 States at June 30, 1975. Most of the remaining 29 States and territories were not expected to have approved permit programs before 1976 because of (1) lack of interest in participation in the program, (2) lack of statutory authority, (3) deficiencies in legislation already enacted, and/or (4) limited resources.

For example, Pennsylvania, the largest State in region III in terms of the number of dischargers, had not assumed program responsibility as of June 30, 1975. EPA had hoped Pennsylvania would assume program responsibility since this would considerably reduce EPA's workload. However, because (1) the State law had penalties less stringent than provided in the 1972 amendments and (2) State procedures for assuring public participation did not conform with EPA regulations, program responsibility could not be assumed until these differences were resolved.

In region V, EPA officials informed us that Illinois had not applied for the program primarily because the State objects to EPA's continuing review authority before permit issuance.

EPA has the primary responsibility for enforcing EPA-issued permits in most States, including States with approved permit programs. State legislative authority is needed before States with approved programs can enforce EPA-issued permits. Fourteen States--California, Colorado, Connecticut, Delaware, Georgia, Kansas, Missouri, Nebraska, North Dakota, Oregon, South Carolina, Vermont, Washington, and Wyoming--do not have this legislative authority, and EPA will have to enforce the permits it issued.

Ten States with approved programs--Hawaii, Indiana, Maryland, Michigan, Minnesota, Mississippi, Montana, Ohio, Virginia, and Wisconsin--are either enforcing or plan to enforce EPA-issued permits.

PROBLEMS IN ESTABLISHING MONITORING CONTROL SYSTEM

EPA spent about \$2.32 million, in an unsuccessful attempt to develop a flexible computer-based system for tracking and analyzing data, to determine whether dischargers were adhering to pollution abatement actions and effluent limitations as required by their discharge permits.

After the major effort to issue as many permits as possible by December 31, 1974, program emphasis in EPA shifted from permit issuance to compliance. EPA said the primary objective of the NPDES permit program in fiscal year 1976 was to assure that a high percentage of major dischargers were in compliance with their permit conditions. To ascertain whether dischargers are complying with their permits, (1) adherence to the permit abatement schedules and (2) adherence to the effluent limitations generally must be monitored.

In the two regions included in our review, EPA required dischargers to submit

- a progress report or a written notice of compliance or noncompliance with the specific abatement actions required by the dates contained in the abatement schedules and
- a quarterly report showing whether dischargers have monitored and adhered to effluent limitations for each outfall, as contained in the permit.

Monitoring the abatement actions and adherence to effluent limitations of the 36,800 industrial and municipal dischargers issued permits as of June 30, 1975, is a large undertaking. For example, on the basis of our sample, the 36,800 discharge permits could cover as many as 70,000 outfalls for which separate discharge monitoring reports would be required quarterly. Further, there is the possibility that many thousands of additional point sources may have to be monitored if EPA is required to issue permits to an estimated 100,000 private treatment plants and 1.86 million animal feedlots.

In June 1972 EPA began developing a general point-source file system which would provide a highly flexible and easy-to-use reporting system and which would allow users to retrieve desired information on point sources, such as when abatement actions are due and whether dischargers are achieving effluent limitations, without requiring any special programming assistance. The system was designed to provide for standardizing and consolidating point-source information from many separate and sometimes redundant files into a single centralized data base.

The development of the system had many serious problems, including lost user data, delays in updating the data base with new information, and difficulties in retrieving data. Because of these problems, the EPA regions lost confidence in the system's ability to provide the data needed for the successful implementation of the permit program. The system was phased out in 1975.

The cost for developing the system totaled about \$2.32 million, consisting of about \$1.5 million for computer time used through December 31, 1974, and about \$822,000 estimated for contracted services through March 31, 1975.

To evaluate the progress of the general point-source file system, EPA hired a management consulting firm to make a management audit. The audit was made during June to August 1974.

In an August 28, 1974, report, this firm concluded that:

- The system did not currently support its users' needs.
- It was doubtful whether currently contracted development efforts would succeed in rectifying this failure.
- Failures were primarily attributable to a lack of management control: the absence of clear system

objectives reflecting EPA's priority of needs, and a lack of senior management understanding of the system development process.

An EPA official told us that EPA had taken certain actions to insure that the problems encountered in the development and operation of the general point-source file system would not recur. EPA published an administrative order in April 1974 and issued a manual in March 1975 setting forth policies and procedures for acquiring and using electronic data processing.

Late in 1974 EPA developed a computer-based permit compliance system to provide EPA regional offices with monthly listings of all abatement schedule reports and self-monitoring discharge reports that should be received from permit holders during the coming month. The system does not show whether dischargers are or are not in compliance with required abatement actions or effluent limitations.

An EPA official described the system as an automated tickler¹ file which could easily be expanded to accommodate other tasks as needed. He said the design was based on another system being used by EPA for the air pollution abatement program and was chosen because of low initial and maintenance costs and simplicity of operation.

EPA estimated that developing and implementing the system will cost about \$75,000 and that operating and maintenance costs will total about \$75,000 annually if all 10 regions used it. The data base for the permit compliance system was created from information stored in the general point-source file system.

Testing of the system had been satisfactorily completed, and four regional offices, including regions III and V, had accepted and were operating the system at June 30, 1975, according to an EPA official. The other six regional offices had established their own computer or manual system although some regions had expressed interest in using the permit compliance system. The EPA official also stated that additional features, such as regional comments and description data about dischargers, would be added to the system during the next year and this could influence another three regions to use it.

¹A file showing when certain actions are due.

CONCLUSIONS

EPA faced a monumental task in processing and issuing permits to the 33,300 industrial and 19,700 municipal dischargers required to obtain permits under the NPDES permit program. EPA faces an almost impossible task if it has to issue permits to the estimated 1.8 million animal feedlots, 100,000 storm water discharge point sources, and indeterminate number of agricultural and silvicultural activities.

EPA has had to retain most of the administrative workload in processing, issuing, monitoring, and enforcing permits because it has had limited help from the States. Further, EPA experienced problems in establishing a system to monitor dischargers' compliance with permit conditions.

RECOMMENDATION TO THE ADMINISTRATOR, EPA

We recommend that, to reduce the administrative workload on EPA in processing, issuing, monitoring, and enforcing permits, the Administrator of EPA

- encourage States' assumption of the NPDES permit program and
- work with the States to resolve differences between State laws and Federal requirements to facilitate States' assuming the program and enforcing EPA-issued permits.

AGENCY COMMENTS

EPA told us on December 30, 1975, that it concurred in our recommendation. (See app. I.) EPA also said that 27 States have now assumed the NPDES permit program and that it would continue to invite and help other States become eligible to assume the program.

MATTER FOR CONSIDERATION BY THE SUBCOMMITTEE

The Subcommittee may wish to propose amending section 402 of the Federal Water Pollution Control Act to give EPA the authority to exempt certain categories or classes of dischargers having a minimal adverse impact on water quality.

CHAPTER 3

INDUSTRIAL PERMIT PROGRAM FACES MAJOR PROBLEMS

The Congress intended (S. Rept. 92-1236, Sept. 28, 1972) that each industrial discharger achieve uniform effluent limitations by July 1, 1977, or more stringent requirements where necessary and that the permits issued under the NPDES program would be used for requiring abatement actions, for monitoring progress, and for taking enforcement action against violators. Under the program industrial dischargers have been and are making some progress to abate water pollution. However, the industrial permits issued under the program were not, for the most part, based on uniform effluent limitations as intended by the Congress, and many major problems need to be overcome before the program can function effectively.

Challenges to effluent limitation guidelines and permit conditions are causing EPA program problems. From March 1974 to June 30, 1975, industrial dischargers and trade associations filed about 145 lawsuits challenging 28 of the 46 effluent limitation guidelines that had been published. EPA advised us that its staff responsible for preparing the guidelines spent over one-half of its time on matters related to preparing defenses of technical issues involved in the challenges. This has been a continuing, severe drain on the time staff could spend on preparing guidelines.

Nationwide EPA, as of September 12, 1975, had received requests for adjudicatory hearings--a protracted and complex process--from private companies for modifications to 1,470 EPA-issued permits, including 665 major permits. Few requests had gone to adjudicatory hearing although about 200 major industrial permits had been resolved and a hearing was no longer required. Adjudicatory hearing requests for 450 (23 percent) of the approximately 2,000 EPA-issued major industrial permits were pending. Until the challenges are resolved, abatement action for those elements of the permit in dispute may be delayed, and if delayed long enough, it may be difficult for the discharger to meet his permit requirements by July 1, 1977--the deadline required by the 1972 amendments.

EPA was also experiencing some problems in administering the program because

--1,756 industrial permittees in the quarter ended April 30, 1975, had not adhered to their abatement

schedules or had not submitted required progress reports which require action on the part of EPA and

--staff was used primarily to issue permits before fiscal year 1976 and efforts to enforce permit conditions had been limited.

PROGRESS IS BEING MADE

As of June 30, 1975, EPA and the States had issued 2,797 permits to major industrial dischargers, or 89 percent of the 3,138 applications received, and 17,294 permits to minor industrial dischargers, or 57 percent of the 30,204 applications received. As of the same date, region III had issued 352 permits to major industrial dischargers, or 65 percent of the 544 applications received, and 1,444 permits to minor industrial dischargers, or 36 percent of the 3,967 applications received. Region V had issued 394 permits to major dischargers, or 84 percent of the 471 applications received, and 4,782 to minor dischargers, or 85 percent of the 5,657 applications received.

Discussions with various industries included in our sample of 50 industrial permits show that progress is being made as pointed out in the following examples.

1. A paper company is spending approximately \$8 million to construct a treatment facility capable of handling 24 million gallons a day of discharge from three of its plants. Most of the major construction work is completed, and the facility is expected to be operational in March 1976. This same company is also starting construction on a \$4 million secondary treatment facility, for another plant, which is scheduled to be operational before July 1977. These actions are being taken because of NPDES permit requirements.
2. An official of a large chemical company told us that it had spent over \$2 million on pollution control dating back to before the NPDES program. It is currently constructing a treatment facility which is expected to be completed in 1975. This facility is needed to meet its permit effluent limitation requirements.
3. Another paper company which is currently meeting its permit effluent limitation requirements is going to start construction in February 1976 on a complete waste water recycle system which is

expected to be operational by July 1977. According to a company official, this should enable it to meet the 1983 best available treatment requirements by July 1977.

FINAL EFFLUENT LIMITATION GUIDELINES NOT AVAILABLE OR APPLICABLE

By July 1, 1977, industrial dischargers are to apply the best practicable control technology currently available¹ as defined by EPA in effluent limitation guidelines. The exceptions are those cases where State effluent limitations or water quality standards are more stringent. The 1972 amendments required EPA to develop and publish by October 18, 1973, effluent limitations by category of industrial dischargers of pollutants. EPA, however, did not publish the guidelines for the first industrial category until January 1974 and as of October 28, 1975, had not established estimated publication dates for all remaining industrial categories.

In our report to the Subcommittee on Environmental Pollution, Senate Committee on Public Works, entitled "Implementation of Federal Water Pollution Control Act Amendments of 1972 is Slow" (B-166506, December 20, 1974), we stated that delayed publication of the guidelines did not seriously affect the number of industrial permits issued. When final guidelines were not available, permits were issued on the basis of interim guidance² and/or individual assessments of the permit applicants' discharges. Permits issued in this manner, however, do not insure uniformity of effluent limitations by industrial category as intended by the Congress.

¹According to EPA, this is technology that takes into account such factors as age of equipment, facilities involved, process employed and process changes, engineering aspects of control techniques, environmental impact apart from water quality including energy requirements, and the balance between total cost and effluent reduction benefits.

²EPA had developed interim effluent instructions which were applicable to major dischargers in 21 industrial categories and had determined that permits could be issued on the basis of the interim instructions if the instructions were thorough enough to insure that permits would not be inconsistent with limitations subsequently issued.

The Congress intended that EPA establish uniform effluent limitations for industrial dischargers by category or class to insure that similar dischargers with similar characteristics, regardless of their location or the nature of the water into which the discharge is made, will meet similar effluent limitations. The exception is those cases in which State effluent limitations or water quality standards are more stringent.

In our sample of 50 permits covering 263 pollutants, limitations for 95 pollutants were based on State-imposed effluent limitations or water quality standards and 11 were based on final effluent limitation guidelines. Limitations for the remaining 157 pollutants were not based on final effluent limitation guidelines because the guidelines were not promulgated at the time the permits were issued or, if promulgated, were not applicable to the type of process the company used.

As a result, EPA and the States had to negotiate effluent limitations with dischargers on the following bases.

	<u>Number of pollutants</u>
EPA-proposed guidelines	21
EPA interim guidance	72
EPA national policy pronouncements	8
Regional office standards and best professional judgment	51
Permittee's ability to meet more stringent limitations	<u>5</u>
Total	<u>157</u>

Permits issued on the above bases may contain effluent limitations more or less stringent than best practicable control technology as defined in EPA's final guidelines.

For example, 3 of the permits included in our review contained effluent limitations for 14 pollutants that were more restrictive than those required by the final guidelines. Two of the three dischargers appealed their permit conditions and asked that the effluent limitations be based on the final guidelines. One of the two dischargers, a major oil company, was issued a 5-year permit based on proposed effluent limitation guidelines for the petroleum point-source category in May 1974. In June 1974 the discharger appealed the effluent limitations in the permit because final guidelines, published 6 days after issuance of the permit, contained less stringent limitations.

Subsequently, amendments to the final guidelines, which for the most part were less stringent as applied to this company, were proposed in October 1974 and promulgated in May 1975. EPA, the State, and the discharger agreed to modify the permit on the basis of the effluent limitations contained in the proposed amendments of October 1974. (See app. II, p. 48.)

EPA's policy was to not automatically modify permits that were issued before effluent limitation guidelines were promulgated. EPA officials told us that it opposed modifying, on a regular basis, permits issued before final effluent limitation guidelines had been promulgated because industrial dischargers would not proceed with implementing permit conditions under the threat of changing requirements and direction. EPA, in commenting on our report to the Senate Subcommittee on Environmental Pollution, stated that in most cases such permits contained effluent limitations either equivalent to or more stringent than those prescribed in the final guidelines.

EPA concentrated on developing effluent limitation guidelines for the 27 industrial categories identified in section 306 of the act as the worst sources of water pollution. To cover the industries with the most extreme pollution problems first, EPA decided to issue guidelines for the 27 industrial categories in two phases--30 subcategories to be covered in the first phase and 21 in the second. EPA then planned to develop guidelines for additional industrial categories. All first-phase guidelines had been promulgated by October 1974.

During the period from January 3, 1975, to October 28, 1975, EPA published 16 second-phase guidelines; however, 8 were published as interim guidelines without the benefit of prior public proposal or formal comment period. Also, EPA had published six guidelines, including three interim guidelines, for the additional industrial categories.

EPA expected to publish 13 other interim guidelines--3 second-phase categories and 10 additional industrial categories--by December 1975. It set target dates, extending to the latter part of 1976, for the publication of final guidelines to replace the interim guidelines for the 11 second-phase categories and for 6 of the 13 additional industrial categories.

EPA had not established target dates for (1) the publication of either interim or final guidelines for the two remaining second-phase categories and nine remaining

additional categories or (2) the replacement of the seven remaining interim guidelines with final guidelines.

EPA has attributed problems in developing the second-phase guidelines and guidelines for additional industrial categories to

- a continued shortage of qualified personnel,
- difficulties in obtaining adequate information on the industrial categories,
- time consumed in defending challenges to published guidelines,
- the need to correct deficiencies and revise some published guidelines, and
- the need to strengthen the data base for guideline limitations and reexamine second-phase guidelines late in the process of development as a result of the challenges.

Effluent limitation guidelines not applicable

In our sample of 50 permits, proposed or final effluent limitation guidelines which were available could not be applied to 13 permits because the guidelines were not applicable to the particular product manufactured or the type of industrial process used by the company. For example, for four permits issued in Wisconsin to paper mills, the limitations were based on EPA interim guidance and State regulations because the paper mills covered by these permits produced different products or used different processes than those covered in the proposed or final guidelines.

Wisconsin officials told us that final EPA guidelines issued for this category applied to only 4 of the approximately 50 paper mills in the State.

Toxic effluent standards

In addition to requiring EPA to publish effluent limitations guidelines, the 1972 amendments required EPA to publish a list of toxic substances by January 18, 1973, and to propose toxic effluent standards by July 18, 1973. Final standards were to be published as soon as possible after a public hearing on the proposed toxic standards unless a modification of the proposed standard was justified on the basis of evidence presented at the hearing.

EPA proposed effluent standards for nine toxic substances in December 1973, but they were not published as final standards because the toxic limits could not be adequately supported. An EPA official told us that EPA had been developing toxic limits on the basis of an expanded data base and was considering the technical achievability and economic impact of toxic standards. The EPA official said revised effluent standards would be proposed beginning December 1975 and final publication of toxic effluent standards was expected in the latter part of 1976.

EFFLUENT LIMITATION GUIDELINES CHALLENGED

From March 1974 to June 30, 1975, industrial dischargers and trade associations had filed about 145 lawsuits challenging the validity of EPA's effluent limitation guidelines. These lawsuits covered 28 of the 46 effluent limitation guidelines that had been published. An additional 90 lawsuits had been filed challenging performance and pretreatment standards for new point-source discharges.

Although numerous individual lawsuits had been filed, almost all challenges against effluent limitation guidelines and new source performance standards had been consolidated by industrial category or subcategory so that, with few exceptions, only one case per category or subcategory would be tried in the U.S. courts of appeals.

Major arguments raised by petitioners in the suits included:

- The U.S. courts of appeals did not have jurisdiction to directly review the guidelines for existing plants and lawsuits for each individual challenge should originate in the U.S. district courts under the Administrative Procedure Act (5 U.S.C. 701, et seq.).
- A range of limitation values for a pollutant should be used in the guidelines rather than a single value as a firm standard.

¹A new point source is a pollutant discharging facility whose construction is started after the publication of proposed performance standards for controlling pollutants which will be applicable to that source. The standard is to reflect the greatest degree of effluent reduction achievable through the application of best available demonstrated technology.

--EPA used inappropriate methodology and inadequate data bases which resulted in unreasonable effluent limitation guidelines.

--The cost of required technology was not adequately considered.

As of June 30, 1975, 4 cases involving minor issues, according to EPA, had been settled out of court in favor of the dischargers, 7 had been tried with 1 court decision rendered against EPA, 1 case was dismissed, and 26 were pending. Also 10 cases challenging pretreatment standards for new sources had been stayed pending promulgation of pretreatment standards for existing sources.

The first court decision was rendered on May 5, 1975, by the U.S. Court of Appeals for the Eighth Circuit (Nos. 74-1447, 74-1448, and 74-1449) on a case relating to EPA regulations for the "Corn Wet Milling Subcategory" of the "Grain Mills Point Source Category." The court ruled that:

--It could not directly review the guidelines for existing plants and accordingly dismissed the petitions with respect to them; however, they are reviewable in the U.S. district courts.

--Sufficient doubt was cast on the achievability of standards for new sources to cause the court to reject these standards. The court instructed EPA to either furnish support for the new source standards previously published or establish new ones which can be achieved with the best available demonstrated technology. The court also instructed EPA to develop adequate projected capital and operating costs for implementing the standards.

--The pretreatment standards for new point sources are too vague and uncertain. The court remanded these standards for EPA's reconsideration and amendment.

Impact of litigation

EPA has stated that the challenges of the guidelines have been a continuing, severe drain on the time of the personnel involved in the preparation of guidelines. The Director of EPA's Effluent Guidelines Division estimated that for several months, more than one-half of his staff's time had been spent on matters related to the preparation of defenses of technical issues involved in the challenges.

The challenges have also caused EPA to strengthen the data base for some guidelines and reexamine draft guidelines late in the process of development and have delayed the issuance of additional guidelines.

EPA officials believe that requiring challenges to be tried in the U.S. district courts and the guidelines to include a range of effluent limitations for pollutants would adversely affect the permit program and the likelihood of meeting water quality goals because:

- Requiring U.S. district courts to try a large number of individual guideline challenges would increase the Government's workload in defending the individual lawsuits and would slow the final decisions on challenges and any required permit revisions.
- Requiring a range of effluent limitations be established for pollutants would result in time-consuming revisions of many guidelines and pressure by industrial dischargers for the incorporation of the least stringent limitations in their permits which would slow pollution abatement and could reduce water quality.

An EPA official said, with respect to the challenges of EPA guideline development methodology, that no technical guidelines or standards could be developed without some challenges. Although these challenges will result in EPA having to revise some guidelines and permits, they will have only a minimal long-term impact on water quality.

EPA policy calls for limiting permit revisions following successful challenges of effluent guidelines. In a December 1974 memorandum, the EPA Assistant Administrator for Enforcement and General Counsel advised the regional administrators that they may grant a discharger's request for permit revision if, following promulgation of a court-modified effluent guideline, the discharger can demonstrate that it has permit requirements based on effluent guideline requirements subsequently modified by court order. The Assistant Administrator emphasized that this permit revision policy did not apply to permit effluent limitations based on effluent guidance considerations, proposed effluent guidelines, water quality standards, or any other requirements other than a promulgated effluent guideline.

CHALLENGES TO PERMIT CONDITIONS

EPA faces difficult problems in resolving challenges to permit conditions--especially challenges by major dischargers. Nationwide, EPA, as of September 12, 1975, had received adjudicatory hearing requests from private companies for modifications to 1,470 EPA-issued discharge permits--665 major permits and 805 minor permits. Adjudicatory hearing requests from municipalities totaled 151. As of September 12, 1975, 233 permits had been settled of which about 30, according to an EPA official, had gone through the adjudicatory hearing process which was protracted and complex. EPA headquarters did not compile data on challenges to State-issued permits.

EPA denied the adjudicatory hearing requests of 106 of the 665 major industrial permittees and settled the requests of 109. Adjudicatory hearing requests of about 450 major industrial permittees, or 23 percent of the 2,000 EPA-issued major industrial permits, were pending at September 12, 1975. Until the challenges are resolved, EPA cannot enforce the contested permit conditions. Therefore, abatement action on contested permit conditions may be delayed, and if delayed long enough, it may be difficult for the discharger to meet his permit conditions by July 1, 1977--the deadline required by the 1972 amendments.

Headquarters officials told us that although EPA had not tabulated the issues involved or the frequency of the issues, industrial dischargers are challenging permit conditions because

- the final effluent limitation guidelines did not apply to their plant,
- permit conditions were unreasonable,
- permit limitations based on State-imposed standards were unrealistic and could not be achieved, and
- State thermal effluent limitations for steam electric-power-generating plants were more stringent than EPA effluent limitations.

For example, of 335 major dischargers in the electric powerplant category, 111--33 percent--had requested adjudicatory hearings as of August 1, 1975. In addition, 22 minor dischargers had requested hearings. EPA officials told us that about 60 of these plants were challenging thermal limitations based on State water quality standards contained in their permits.

An additional 245 major and minor electric-power-generating plants had requested either time for making thermal discharge studies or less stringent thermal limitations pursuant to section 316a of the act. Section 316a authorized EPA or the States to impose less stringent limitations if the plants could demonstrate that their thermal effluents would not harm aquatic life.

Review of challenges in the regions

In the 2 EPA regions (III and V) included in our review, about 270 of 814 major industrial dischargers, or 33 percent, requested adjudicatory hearings before their permits were finalized or after they were issued. These dischargers are ranked among the Nation's largest firms and account for a large portion of the water pollution in the regions, which increases the need to resolve these challenges in a timely manner.

Region V

In region V we identified 168 major industrial dischargers who had requested a review of their EPA or State-issued permit through the hearing process.

<u>State</u>	<u>Total major dischargers</u>	<u>Adjudicatory hearings</u>	
		<u>Requested</u>	<u>Percent</u>
Illinois	83	36	43
Indiana	56	34	61
Michigan	126	3	2
Minnesota (note a)	32	16	50
Ohio (note a)	109	53	49
Wisconsin	65	26	40
Total	<u>471</u>	<u>168</u>	36

^aIn Minnesota and Ohio, adjudicatory hearings are requested before permits are issued. Therefore, no part of the permit is effective until after the hearing is resolved.

As of March 1975 many of these cases were still pending. Some of the hearings have been scheduled for as late as November 1975 and if some of these companies take their appeals through the court system, the delays could be considerably longer.

In our sample of 30 industrial permits in Illinois and Wisconsin, 11 permittees had requested an adjudicatory hearing. Three of these requests were resolved before

reaching the hearing stage, one was denied, and seven were still pending. All but one of these requests were from major dischargers and were for a variety of reasons. For example:

- A paper mill challenged the effluent limitations, monitoring requirements, and EPA's definition of best practicable treatment.

- A power company challenged chlorine limits, the chlorination procedure, and the schedule of compliance for chlorine reduction.

Our sample included two permits that were being appealed because Illinois and EPA effluent limitations were included in the same permit. Illinois water pollution control regulations are generally stricter than EPA final effluent limitation guidelines and are based on concentration limits. EPA's limits are based on weight.

In these cases the discharger must meet the more stringent limitation. For example, one company had a daily average BOD₅¹ limit of 20 milligrams a liter based on State regulations and 2,520 pounds of BOD a day based on EPA guidelines. The State concentration limit converts to 667 pounds a day, on the basis of the discharger's expected flow of 4 million gallons a day which is 3.8 times more restrictive than best practicable treatment requirements. The limit becomes even more restrictive if the company practices water conservation and reduces its flow. For example, if the company reduces its water consumption to 3 million gallons a day, the State standards become 5 times more restrictive than best practicable treatment. (See app. II, p. 53.)

Region III

In region III, 174 industrial permits were appealed as of April 30, 1975, including 102 major industrial dischargers, or 31 percent of the 331 major permits EPA issued. EPA issued most of the permits in region III. The following table summarizes the appeals by major industrial dischargers by State.

¹See app. IV.

<u>State</u>	<u>Total major permits (EPA issued)</u>	<u>Adjudicatory hearings requested</u>	<u>Percent</u>
Pennsylvania	122	59	48
Maryland	26	1	4
Delaware	7	2	29
Virginia	88	12	14
West Virginia	88	28	32
Washington, D.C.	0	0	-
Total	<u>331</u>	<u>102</u>	31

Of the 174 industrial permits appealed as of April 30, 1975, 32 have been settled; 23 were closed, withdrawn, or denied; and 9 were resolved without a formal hearing. At the time of our review in June 1975 no appeals had reached the level of an adjudicatory hearing. Region III has experienced delays in resolving requests for adjudicatory hearings. Some of the delays were inherent in the amount of paperwork involved in reviewing the basis of the permit and the issues of the appeal.

In our sample of 20 industrial permits in Pennsylvania and Delaware, 4 permittees had requested an adjudicatory hearing. Basically three of the permittees were requesting that their permits be based on final effluent guidelines rather than on interim or proposed guidelines which were more stringent. In one case the permittee was challenging the State-imposed effluent limits. Region III officials believe that three requests can be settled without a formal hearing; however, the region has directed the permittee challenging State-imposed limitations to resolve these issues with the State.

At our request region III officials provided us with two examples in which major industrial dischargers responsible for most of the pollution in a river segment--the Kanawha River, West Virginia, and the Monongahela River, Pennsylvania--appealed their effluent limitations that were based on water quality standards. Abatement actions will be unlikely until the appeals are resolved.

The Kanawha River--Seven major chemical plants and one major municipal facility, which treats mostly chemical company wastes, located along a 32-mile segment of the river appealed their permits. Three of the seven plants were operated by one corporation and two were operated by another corporation. According to a region III official, discharges from these seven plants accounted for 80 to 90 percent of the pollution load in that portion of the river.

Each discharger had joined in the other dischargers' appeals, and there were numerous aspects of each permit being challenged or questioned. One of the appeals contained 32 issues. However, all these dischargers appealed the limit on the amount of oxygen-demanding wastes they would be allowed to discharge by July 1, 1977, and that was the major point of contention according to region III officials.

According to EPA, the flow of the Kanawha is interrupted by a series of dams, the river is sluggish, and a low level of dissolved oxygen is the major problem.

Region III officials set the effluent limitations for oxygen-demanding wastes on the basis of a waste load allocation model¹ developed by EPA. The chemical plants were required to achieve by July 1, 1977, a level of treatment between best practicable treatment and treatment based on best available technology, which is not required until July 1, 1983.

EPA officials also told us that the chemical plants have made progress over the past several years in cleaning up their discharges. In accordance with an agreement with the State, a three-phase abatement program had been started before 1960. At the time of their appeals, the dischargers were providing a level of treatment that is above the secondary level, 85 percent removal of BOD. But on the basis of its model, EPA concluded that the levels were not adequate to meet water quality standards for the Kanawha. The dischargers, however, are challenging the validity of the EPA model, and region III officials believe their appeals will not be resolved without an adjudicatory hearing.

The Monongahela River--Six major steel plants along a 40-mile stretch of the river have been granted their requests for an adjudicatory hearing on their permits. Four of the six plants are part of one corporation whose appeals for the four plants contain 376 issues including the legality of the regulations under which EPA issued their permits. Region III told us that most of the pollution load on that part of the river comes from the six steel plants.

¹A model that determines the degree of effluent limitations from point sources needed to achieve water quality standards.

According to region III officials, compounds in the steel plants' discharges, such as cyanide and phenol, are the specific items of major concern to the State and EPA. The river is a source of public drinking water, and high phenol concentrations, particularly during the winter, cause taste and odor problems. The phenol limits, which five of the six dischargers were challenging, were set by the State. On the basis of a model, the State allocated to each discharger the number of pounds of phenol each plant could discharge. EPA's guidelines for best practicable treatment were considered adequate for oxygen-demanding wastes, and no more restrictive limits were set for them.

Pennsylvania water pollution control agency officials told us in November 1975 that two of the six plants were making some progress towards abating pollution but four plants, which are part of one corporation, would not take any important abatement actions until all the numerous issues are resolved. The officials also said that State hearings on the appeals are expected to be held in March 1976 but it will probably take 4 or 5 years before the appeals are finally settled.

PROBLEMS IN MONITORING AND ENFORCING PERMIT CONDITIONS

Noncompliance with abatement schedules, effluent limitations, and reporting requirements may be widespread. As July 1, 1977, comes closer, EPA will need to give priority attention to monitoring compliance with permit conditions to take enforcement actions against violators. In fiscal year 1976 program emphasis will be on insuring that a high percentage of major dischargers are in compliance with permit conditions. It is too early to tell whether EPA and State enforcement actions will be effective.

Noncompliance with abatement schedules or reporting requirements

EPA and State reports for November 1, 1974, through January 31, 1975, showed that 1,492 of the 15,068 industrial permittees had not adhered to their compliance schedules or had not submitted required progress reports. The reports compare the number of permits not in compliance to the number of permits issued. The percentage of noncomplying permits is about 10 percent. However, this is misleading. Many dischargers may not have a compliance schedule or a compliance action may not have been due during that period, and therefore the instances of noncompliance are not related to the proper total. The number of permits not in compliance should be related to the number of permits for

which a compliance schedule action was due during the reporting period. For example, 177 permits, or 11 percent of the permits issued in region III, were not in compliance. This represented, however, 49 percent of the 361 permits for which a compliance action was due in the reporting period. In view of the number of dischargers in region III, this could be an extremely difficult problem.

We were unable to make the same comparison for region V because similar data was not available.

Noncompliance with effluent limitation or reporting requirements

For the 50 industrial permits in our sample, 45 were required to submit a discharge monitoring report during the period of review. We found that 6 of the 45 did not submit their reports, and of the 39 who did, the reports for 21 showed that effluent limitations had been exceeded. The report for one was incomplete.

Regions III and V had limited procedures to monitor compliance with effluent limitations and as a result did not have data on the total extent of noncompliance with effluent limitation requirements. We believe that noncompliance may be widespread, because even with its limited monitoring system, region III data as of June 6, 1975, showed that effluent limitations were exceeded by 296 industrial dischargers and another 69 dischargers failed to submit a monitoring report. As of May 31, 1975, 1,804 industrial permits had been issued within region III.

Enforcement

The 1972 amendments, which require that dischargers obtain permits with specific effluent limitations and provide for severe civil and criminal penalties for violations of permit conditions, strengthened EPA's capability for enforcing pollution control. Under the act in effect before the 1972 amendments, EPA could take enforcement action only when water pollution had occurred; that is, when a discharge had endangered health and welfare or had lowered the quality of the water. Even with testing it was difficult to relate a change in water quality to a specific municipal or industrial discharge.

Under the 1972 amendments, EPA or the States are authorized to establish specific effluent limitations and abatement actions in NPDES permits that industrial dischargers must achieve within a certain time frame. The permit, in effect, is an enforceable contract between the

Government and the company. Under this system, enforcement is easier because a failure to meet the established restrictions, rather than showing that a polluter's discharge caused a violation of water quality standards, is sufficient grounds to start enforcement proceedings.

Although EPA's primary objective during fiscal years 1973-75 was to issue NPDES permits, program emphasis has changed and the primary objective in fiscal year 1976 is to insure that a high percentage of major dischargers are in compliance with abatement schedules and final effluent limitations. In September 1975 EPA headquarters officials told us that limited emphasis would be placed on enforcing interim effluent limitations which usually restrict the discharger to what it was discharging at the time the permit was issued.

From January 1, 1973, through June 30, 1975, EPA issued about 545 administrative orders to industrial dischargers and referred about 85 cases to the Department of Justice for civil or criminal actions. For the 6-month period January through June 1975, EPA issued about 170 administrative orders and referred about 50 cases to the Department of Justice. EPA or the States issue to violators of permit conditions administrative orders requiring compliance.

If the discharger fails to comply, then the case can be referred to the Department of Justice for civil action. The law also provides for criminal penalties for willful or negligent violations. EPA told us that data was not available which would show what the States had done concerning enforcement actions on State-issued permits.

Wisconsin, one of the States covered in our review, took over the permit program in February 1974 and had statistics available as of February 1975 which showed 72 industrial permittees with 133 permit violations, of which 33 were related to abatement schedules. The February 1975 report showed that the State had initiated enforcement actions for only 13 of the 33 violations; 7 notices of noncompliance and 6 referrals to the State attorney general. The violations referred were all for one company and included

- failure to complete final plans, due December 31, 1973;
- failure to begin construction, due March 31, 1974;
- failure to complete construction, due September 30, 1974; and

--failure to attain operational level, due September 30, 1974.

This case was referred to the State attorney general in December 1974. Wisconsin officials said that the case was settled in April 1975--the company was fined \$8,000; the company closed the plant, and the permit was rescinded. In November 1975 Wisconsin officials also told us that 15 cases--including 3 municipal cases--had been referred to the State attorney general because of permit violations. Six cases had been closed, and in five cases fines were levied ranging from \$5,000 to \$17,500.

In our sample of 50 industrial dischargers, 22 dischargers were not in compliance with their abatement schedules. Adjudicatory hearings or permit modifications relative to the abatement schedules were pending for 11 permittees. As of April 1975 EPA or the States had initiated enforcement actions in 5 of the remaining 11 cases.

Since January 1975 the emphasis of the program in region III has been to enforce compliance with abatement schedules of major dischargers. A procedure was implemented to review discharge monitoring reports to determine compliance with effluent limitations, but according to regional office officials, enforcing this aspect of the permit had a low priority.

Region III will not consider enforcement actions unless a significant violation of effluent limitations has occurred, such as the discharge of toxic wastes. Region III policy is that before legal action is considered the following determinations must be made: (1) the effluent limitation violated is considered reasonable, (2) the sampling technique must be reliable, and (3) the violation harms the environment. Also, the history of the discharger's performance and his attitude will be considered.

CONCLUSIONS

Progress is being made by industrial dischargers to abate water pollution. EPA, however, is experiencing problems which will hinder efforts to fully achieve the requirements of the 1972 amendments. The problems included:

--Effluent discharge limitations in permits were, for the most part, not based on final guidelines setting forth uniform effluent limitations for industrial dischargers by category or class as intended by the Congress. The guidelines were not published in time to be used or were not applicable.

--Lawsuits challenging effluent limitation guidelines have required EPA staff time to prepare defenses of technical issues, taking away time staff could spend on preparing guidelines, and may adversely affect the permit program and the likelihood of achieving water quality goals if some of the challenges are successful.

--Many industrial dischargers have asked for adjudicatory hearings, a protracted and complex process, seeking modification of permit conditions. Few requests have gone to a hearing process, and until they are resolved, abatement actions for those elements in dispute may be delayed, and if delayed long enough, it may be difficult for the discharger to meet his permit conditions by July 1, 1977, the deadline required by the 1972 amendments.

--Some industrial dischargers were not adhering to their abatement schedules, effluent limitations, or reporting requirements.

In certain selected cases, EPA may need legislative authority to grant deadline extensions so that industrial dischargers whose permit conditions have not been finalized pending the outcome of adjudicatory hearings can comply with the new requirements. Unless reasonable time is granted to dischargers to construct facilities or change processes to achieve modified effluent limitations as a result of adjudicatory hearings, enforcement of the limitations may be difficult.

The 1972 amendments provide for a strong enforcement program. It is too early to tell whether EPA and the States will be effective in enforcing compliance with permit conditions.

MATTER FOR CONSIDERATION BY THE SUBCOMMITTEE

The Subcommittee may wish to propose amending section 301(b)(1) of the Federal Water Pollution Control Act to provide that EPA may extend on a case-by-case basis the July 1, 1977, requirement that industrial dischargers achieve permit effluent limitations where permit conditions cannot be met by the deadline after challenges to permit conditions have been resolved.

CHAPTER 4

PERMIT PROGRAM WILL NOT INSURE MUNICIPALITIES' COMPLIANCE WITH WATER QUALITY REQUIREMENTS

Almost all permits issued to municipalities will have to be reissued or modified and will not in themselves contribute to meeting the 1977 water quality requirements. The availability of Federal construction grant funds--not permits--is the principal factor in getting municipalities to construct or upgrade waste water treatment facilities to abate pollution. EPA regional offices estimated that 56 percent of 16,700 municipal dischargers nationwide will not achieve required treatment levels by July 1, 1977. EPA has recommended that the July 1, 1977, deadline be extended on a case-by-case basis.

Federal funding of municipal waste water treatment facilities had proceeded at a slow pace--only \$6.6 billion of the \$18 billion made available by the Congress to finance 75 percent of the construction costs for fiscal years 1973-75 had been obligated as of June 30, 1975, and only \$1 billion spent. Further, estimated funds needed by municipalities to construct facilities--\$342 billion--far exceed funds authorized by the 1972 amendments.

In our December 20, 1974, report to the Senate Subcommittee on Environmental Pollution, we stated that the slow pace in which EPA had been awarding grants was caused primarily by new and changing requirements in EPA's regulations implementing legislative provisions for awarding construction grants. However, in an October 24, 1975, report to the Chairmen of six cognizant congressional legislative and appropriations committees, we stated that one major concern was that EPA's limited resources should not be directed toward awarding grants as fast as possible with little or no attention being given to whether treatment facilities are constructed efficiently and at least cost.

EPA estimated that almost all municipal permits will need to be reexamined and either reissued or modified in fiscal year 1977 because

- many municipalities were issued short-term permits expiring before July 1, 1977, because they could not meet the deadline;

- permit abatement schedules will have to be tied into the availability of Federal funds and reasonable construction timetables; and

--permits may have to be modified to reflect proposed changes in the definition of secondary treatment¹ and promulgation or pretreatment requirements which the act required EPA to publish by June 1973² for industrial companies discharging into municipal waste water treatment plants.

Our review of 60 of the 120 permits included in our sample showed that 15 municipalities had failed to comply with abatement actions and 16 had exceeded their effluent limitations. EPA and the States had taken some action to follow up on the noncompliance by municipalities. (See app. III for examples.)

The municipal permit program is of limited benefit as an enforcement tool, because EPA and the States do not plan to take enforcement actions against municipalities which are unable to achieve required treatment levels by the July 1977 deadline because of a lack of Federal funding.

PROGRESS IS BEING MADE

Our sample of 120 municipal permits showed that:

--34 municipalities were achieving secondary treatment or advanced treatment levels as required in their permits.

¹EPA's secondary treatment requirements specify effluent limitations for biochemical oxygen demand, suspended solids, and fecal coliform. In a proposed regulation published on August 15, 1975, EPA would eliminate the effluent limitations on fecal coliform from the secondary treatment requirements.

²As of September 15, 1975, EPA had published pretreatment standards for 13 of the 27 industrial categories identified in section 306 of the act as the worst sources of water pollution. (See p. 16.) However, only 6 of the 13 published pretreatment standards covered all subcategories within each industrial category. An EPA official said that a time frame for promulgating standards for the remaining categories had not been established and attributed the slow development of the standards to limited staff resources and limited technical data on the affected industries.

--32 municipalities were achieving secondary treatment or higher levels but were not achieving the required advanced treatment levels necessary to meet State effluent limitations or water quality standards.

--42 municipalities were achieving only primary treatment even though 20 were required to achieve secondary treatment and 22 were required to achieve advanced treatment levels to meet State effluent limitations or water quality standards.

--7 municipalities planned to tie into regional waste water treatment facilities.

--5 municipalities achieving primary treatment were not required to achieve secondary treatment because of limited Federal funding.

Of the 20 municipalities required to achieve secondary treatment, 10 probably will not do so by July 1, 1977, because construction cannot be completed by that date or because of a lack of Federal funds. Of the 54 municipalities required to achieve advanced treatment by July 1, 1977, 28 probably will not do so because of a lack of Federal funds or construction cannot be completed by that date.

FEDERAL FUNDING

The 1972 amendments declared a national policy of providing Federal financial assistance to construct publicly owned waste water treatment works. The amendments authorized EPA through its construction grants program to allocate \$18 billion to the States--\$5 billion, \$6 billion, and \$7 billion for fiscal years 1973, 1974, and 1975, respectively--to finance 75 percent of the cost to construct the treatment works.

After EPA awards a construction grant, it may take a long time to complete a waste treatment plant. EPA has estimated that it takes an average of from 3 to 6 years to plan, design, and construct waste water treatment plants. Therefore, many projects funded under the program cannot be completed by 1977.

EPA awards construction grants to municipalities from the allocations according to EPA-approved annual State priority lists of projects. EPA regulations require States, in determining which projects may be funded, to consider

such factors as the severity of pollution problems, the population affected, the need for preservation of high-quality waters, national priorities, and total funds available.

From the annual State priority lists of eligible projects, a cutoff point is determined on the basis of available allocated funds. Projects below the cutoff point will not be approved by EPA, and many projects cannot be funded.

For example, the Pennsylvania priority list for fiscal year 1975, approved by EPA in September 1974, contained 192 projects at a cost of \$369.1 million but Federal funds of \$222.7 million were allocated to finance only the first 58 projects. As of April 1, 1975, EPA region III had received grant applications for 24 of the 58 projects--8 had been approved, 13 were under review, and 3 required more information.

In a February 1975 report to the Congress, EPA stated that the States had estimated costs of \$107 billion to meet the 1983 goal for waste water facilities and an additional \$235 billion for abatement of storm water pollution as follows.

	<u>Amount</u> (billions)
Secondary treatment	\$ 12.6
Advanced treatment	15.7
Correction of sewer infiltration-inflow	5.3
Major sewer rehabilitation	7.3
Collection sewers	17.5
Interceptor sewers	17.8
Correction of combined sewer overflows	<u>31.1</u>
Total	107.3
Treatment and/or control of storm waters	<u>235.0</u>
Total	<u>^a\$342.3</u>

^a1973 dollars.

The Administrator, EPA, in a July 31, 1975, letter to the Director, Office of Management and Budget (OMB), stated that EPA recognized that the \$342 billion estimated by the States far exceeded any level of long-term funding that could be reasonably assumed within the Federal budget. The Administrator stated that consequently some changes must be made in the currently authorized Federal share and/or eligibilities if it was going to provide the public with a realistic, achievable program which was relevant to the goals of the 1972 amendments. EPA proposed that (1) the Federal share of 75 percent be maintained for secondary treatment, advanced treatment, and correction of sewer infiltration-inflow and interceptor sewers, (2) the Federal share for major sewer rehabilitation and collection sewers be reduced from 75 percent to 45 percent, and (3) the Federal share for correction of combined sewer overflows be reduced from 75 percent to 60 percent. EPA also stated that the estimate of \$235 billion for control of storm water discharges is clearly too large to be included in short-term Federal funding and proposed no Federal funding before 1979.

On the basis of the above changes in the Federal sharing ratio, EPA proposed additional Federal funding totaling \$42 billion or \$7 billion annually during fiscal years 1977 through 1982.

MUNICIPALITIES UNABLE TO COMPLY WITH JULY 1, 1977, REQUIREMENTS

In December 1973 EPA established the policy of issuing 3-year permits to publicly owned treatment works which were unable to achieve full compliance with the 1977 requirements despite all best efforts to do so. Such short-term permits were to contain only appropriate interim compliance milestones and performance and other conditions which could realistically be achieved during the term of the permit.

Thirty-seven municipalities included in our sample, who were issued permits, had little or no chance of meeting the July 1, 1977, water quality requirements. These municipalities were either issued short-term permits expiring before July 1, 1977, or longer term permits containing unachievable abatement actions. These permits will have to be modified or reissued even if the July 1, 1977, deadline is extended.

Short-term permits were issued to 17 of the 120 municipalities in our sample because they would be unable to meet the July 1, 1977, water quality requirements. An additional 18 short-term permits were issued for such reasons as an expected tie-in to a regional system or

possible revision of permit conditions pending completion of basin studies. The distribution of the short-term permits is shown in the following tabulation.

<u>Location</u>	Short-term permits issued because of permittee's inability to meet 1977 requirements	Short-term permits issued because of other reasons	Total short-term permits in sample
Region III:			
Pennsylvania	2	-	2
Delaware	1	2	3
Region V:			
Illinois	9	6	15
Wisconsin	<u>5</u>	<u>10</u>	<u>15</u>
Total	<u>17</u>	<u>18</u>	<u>35</u>

EPA justified issuing short-term permits expiring before July 1, 1977, on the basis that although every EPA-issued permit must contain realistic compliance dates, EPA could not establish or endorse compliance dates extending beyond the statutory deadline. However, such permits will have to be reissued before July 1, 1977, and the problem of permittees' inability to comply with the statutory deadline will have to be faced at that time, if the deadline is not extended or otherwise modified. An EPA official told us that EPA had not ascertained the nationwide total of short-term permits.

Of the 120 municipal permits we reviewed, 85 expire after July 1, 1977, and require the discharger to achieve secondary treatment or more stringent treatment levels by that date. Twenty of the 85 permits were unrealistic, because the municipality was not expected to be able to comply with the 1977 requirements. This was due primarily to the lack of or delays in obtaining Federal construction grant funds and failure of six of the municipalities to apply for construction grants.

The following tabulation shows the distribution of the total number of permits in our sample which require achievement of 1977 requirements and the estimated number of unrealistic permits.

<u>Location</u>	<u>Number of municipalities required to comply with 1977 requirements</u>	<u>Number of municipalities unlikely to comply</u>
Region III:		
Pennsylvania	37	18
Delaware	8	-
Region V:		
Illinois	20	1
Wisconsin	<u>20</u>	<u>1</u>
Total	<u>85</u>	<u>20</u>

A region III official told us that short-term permits had a disadvantage in that only interim limits could be included which allowed the discharger to continue "as he is doing" up to the date the permit expired. Thus, the discharger did not have to work towards compliance with the 1977 requirements. Region III believed that municipalities should be exposed to the goal of reaching the requirements of the act. Therefore, permits were generally issued for 5 years and extended beyond July 1, 1977, and required achievement of the final effluent limitations by July 1, 1977, although it was not known whether a municipality would actually be able to comply with the permit conditions. According to an EPA region III report of January 20, 1975, 527 of 663 issued municipal permits extended beyond July 1, 1977, and required compliance with secondary or advanced treatment levels.

For 25 of the 37 Pennsylvania permits in our sample that required full compliance by July 1, 1977, we obtained the opinions of State officials and the municipal officials and/or their consulting engineers as to the likelihood of meeting the 1977 requirements. These officials indicated that 16 of the 25 permittees probably would be unable to meet the 1977 deadline. Our review of region III data indicated that another 2 permittees would probably be unable to meet the requirements; therefore, a total of 18 of 37 municipal permittees in Pennsylvania would be unable to meet the 1977 requirements. Of the 18 permits, 3 were above the funding cutoff, 9 were below the funding cutoff for 1975, and 6 had not applied for a construction grant and therefore were not on the State priority list.

A project for upgrading the facility covered by the unrealistic Illinois permit--shown in the tabulation on page 37--was ranked 550 of 979 projects on the State's priority list with project number 400 listed as the lowest ranking project which would probably be funded. In June 1974 Wisconsin notified the permittee in our sample with the unrealistic permit that the permit would be modified to eliminate the unrealistic requirements. (See app. III for additional examples of unrealistic permits.)

According to region III officials, the region was under pressure to issue as many permits as possible by December 31, 1974, and therefore did not have enough time to inquire into the ability of each municipality to realistically achieve the 1977 requirements.

The unrealistic permits will have to be revised or reissued before July 1, 1977. Region III has not identified the number of such permits. They plan to reissue the permits on a case-by-case basis after the permits are identified through the enforcement program as not complying with their schedules of compliance. This approach may not be adequate to identify all the unrealistic permits, because the region plans to closely monitor only significant dischargers.

COMPLIANCE WITH PERMIT CONDITIONS

In regions III and V, EPA and the States reported that 231 municipalities--52 in region III and 179 in region V--had not complied with abatement schedule actions required during the quarter ending January 31, 1975. For example, in region III, 63 EPA-issued municipal permits had compliance actions due during the quarter but 52, or 83 percent, were not in compliance with the required action.

We reviewed 60 municipal permits included in our sample to determine whether the municipalities were complying with their permit conditions. The 60 permits required 28 municipalities to take abatement actions and 14 to submit abatement schedules to EPA 6 months after the permit issuance date. No action was required for the other 18 permits, because they were already meeting permit requirements or were issued short-term permits.

Of the 28 permits that contained abatement schedules, 17 had abatement actions due at the time of our review. Four permittees submitted reports to EPA or the States of which two reported that they were in compliance with their schedule. The other two permittees told EPA or the State

that they would be unable to comply with the abatement schedules because of construction delays. EPA apparently took no further action against the permittees.

EPA and the States followed up and contacted 7 of the 13 permittees which failed to submit the required report of compliance or noncompliance. One permittee was in compliance and subsequently submitted the compliance notification to EPA. The following table summarizes the reasons for noncompliance by the other six permittees.

Construction delays	2
Construction grant not received	1
Failure to apply for a construction grant	1
Failure to submit final plans	1
Other	<u>1</u>
Total	<u>6</u>

Only 1 of the 14 municipalities required to submit abatement schedules to EPA did so on time. EPA contacted 11 of the 13 noncomplying permittees; 3 subsequently submitted the schedules and the other 8 did not.

At the time of our review no overall data on the extent of noncompliance with effluent limitations or reporting requirements was available in region V. In region III, EPA reported as of June 6, 1975, that 150 municipal dischargers had exceeded their effluent limitations and 61 had failed to submit discharge monitoring reports. As of May 31, 1975, a total of 1,459 municipal permits had been issued within region III. Region III has placed low priority on monitoring and enforcing effluent limitations and for the most part took no action to follow up on the noncompliance.

For the 60 municipal permits we reviewed, 52 required submitting discharge monitoring reports during our review. We found that 16 had exceeded their interim or final effluent limitations, 7 had submitted incomplete monitoring reports, and 20 had failed to submit monitoring reports. EPA or the States followed up in 11 cases and either contacted the permittee or determined no further action was necessary. The other 32 apparently were not contacted.

ENFORCEMENT

EPA and the States do not plan to take enforcement action against municipalities which fail to achieve by July 1, 1977, secondary or advanced treatment levels, where required, because of a lack of Federal funds. An EPA policy statement in December 1973 stated, in part, that although the law did not make municipal compliance directly contingent on the availability of Federal funds, it was widely recognized that the increase of the Federal share to 75 percent of construction costs made it highly unrealistic in many cases to force municipalities to finance waste water treatment facilities without Federal funds.

However, if EPA fails to take enforcement actions, citizens or citizen groups can take legal action against the discharger or against EPA for failure to take action. Municipalities are subject to fines up to \$10,000 a day if in violation of permit conditions. Willful or negligent violations could bring a fine up to \$25,000 a day and 1 year in prison for the first offense and up to \$50,000 a day and 2 years in prison for subsequent violations.

In a July 31, 1975, letter to the Director, OMB, the Administrator, EPA said that in view of the fact that over 9,000 communities serving about 60 percent of the projected 1977 population would not be able to comply with the July 1, 1977, deadline for secondary treatment or more stringent treatment where required, EPA strongly supported and recommended a legislative proposal to authorize case-by-case extensions from the July 1, 1977, deadline. Case-by-case extensions would be granted on the basis of nonavailability of Federal funds, the Administrator said.

CONCLUSIONS

Municipalities are making some progress toward abating water pollution. EPA, however, estimated that a majority of the Nation's municipal dischargers would not meet water quality requirements by the July 1, 1977, deadline. The availability of Federal funds--not permits--is the principal factor in getting municipalities to construct secondary or advanced treatment facilities, where required, to meet water quality requirements. Federal funding, however, had proceeded at a slow pace--only \$6.6 billion of the \$18 billion had been obligated at June 30, 1975, and only \$1 billion spent--and funds needed to construct facilities--\$342 billion--far exceeded funds authorized. EPA recommended to

OMB that the July 1, 1977, requirements be extended on a case-by-case basis for municipalities where Federal construction grant funds were not available.

Almost all permits issued to municipalities will need to be either reissued or modified in fiscal year 1977 because (1) permits issued for short-terms will expire, (2) EPA wants to coordinate pollution abatement schedules in permits with availability of Federal funds and establish reasonable construction timetables, and (3) EPA plans to incorporate updated treatment requirements into the permits.

For EPA to realize the full potential benefits of municipal permits, it will have to insure through appropriate administrative, monitoring, and enforcement actions that municipalities:

- Maintain their treatment level and not exceed their current discharges as set forth in the permit. This requirement can have the effect of preventing new sewer connections to overloaded waste water treatment plants.
- Adhere to prescribed effluent limitations which will require optimum levels of plant operation and maintenance and completion of any minor facility upgrading which can be undertaken without Federal funding.
- Promptly apply for and use available construction grant funds.
- Periodically monitor and report on discharges to EPA and/or States.

The permit program as an enforcement tool is of limited benefit, because EPA and the States do not plan to take enforcement actions--they would be nonproductive--against municipalities which fail to construct needed facilities by July 1, 1977, because of insufficient Federal funds. Permits tied into Federal funding and containing realistic permit conditions, however, can lead to abatement of water pollution if the permit conditions are properly enforced.

MATTER FOR CONSIDERATION BY THE SUBCOMMITTEE

Taking enforcement actions against municipalities unable to construct facilities to achieve water quality requirements by July 1, 1977, because of insufficient time or Federal funds would be nonproductive. Therefore, the Subcommittee may wish to propose amending section 301(b)(1) of the Federal Water Pollution Control Act to provide that EPA may grant such municipalities extensions beyond July 1, 1977, on a case-by-case basis, to achieve water quality requirements.



APPENDIX I

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 30 1975

OFFICE OF
PLANNING AND MANAGEMENT

Mr. Henry Eschwege
Director
Resources and Economic Development Division
U.S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

We have received your draft report entitled "Implementing Water Pollution Control Permit Program: Progress and Problems."

In general, the report reflects an accurate assessment of the overall problems which have affected the National Pollutant Discharge Elimination System (NPDES) permit program.

The major program inadequacies identified in the conclusions have been recognized by the Enforcement and Permits Divisions of our Office of Water Enforcement and are currently being rectified through policy changes and revised Regional guidance.

With regard to your recommendation that the Administrator encourage States' assumption of NPDES program, we concur and can now report that there are 27 states which have been approved. We will continue to invite and help other states resolve their differences between State laws and Federal requirements so they will also be eligible.

I appreciate the opportunity you have given EPA to review and comment on this report prior to its submission to Congress.

Sincerely yours,

A handwritten signature in cursive script that reads "Alvin L. Alm".

Alvin L. Alm
Assistant Administrator
for Planning and Management

TEN EXAMPLES OF INDUSTRIAL NPDES PERMITS

The 10 examples discussed below are representative of the 50 industrial permits included in our sample. The examples highlight individual instances of progress and problems of implementing the NPDES permit program as discussed in the body of the report.

The glossary of terms and definitions in appendix IV will be helpful in understanding the effluent limitations contained in the permits.

EXAMPLE NO. 1, PROCESSOR OF CLAMS--PROBLEMS WITH
CONNECTING TO REGIONAL PUBLICLY OWNED WASTE WATER
TREATMENT FACILITY

The company, located in Delaware, processes surf clams into a variety of clam products. It discharges untreated process water and noncontact cooling water into a river.

Delaware originally issued the company a 5-year NPDES permit that was effective December 31, 1974. However, the permit had to be revised on the basis of updated discharge test data the company's consultant submitted to the State. The revised permit became effective February 25, 1975.

The permit required the company to construct a primary treatment plant for the process waste water that had to be operational by January 15, 1976, to meet required interim effluent limitations. To meet the July 1, 1977, requirements, the company was given the option of either constructing additional treatment facilities to upgrade the level of treatment above primary or connecting to a regional treatment plant and thereby discontinuing all discharges into the river. The company had to notify the State of the option chosen by October 30, 1975. State personnel told us they preferred that the company tie into the regional system.

However, the regional system is not expected to be operational until April 1978. Therefore, if the company chooses to connect to the regional system, it will be unable to comply with the July 1, 1977, requirements.

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Basis for effluent limitations

The final effluent limitations which the company was required to meet by August 31, 1977,¹ in the event it did not choose to connect to the regional treatment system were based on State regulations. The regulations require 85 percent removal of BOD₅ and suspended solids. Although EPA had promulgated final effluent guidelines for the seafood industry, they did not cover the company's products.

Effluent limitations

The final effluent limitations in the permit are summarized in the following table.

<u>Characteristic</u>	<u>Limitations</u>		
	<u>Daily average</u>	<u>Daily maximum</u>	<u>Maximum instantaneous concentration</u>
BOD ₅	700 lbs	1,400 lbs	840 mg/l
TSS	240 lbs	480 lbs	290 mg/l
Fecal coliform			200/100 ml
Total coliform			1,000/100 ml
pH	6 to 9		

Free chlorine residual shall not be less than 2 mg/l nor greater than 4 mg/l after a 30-minute contact time at maximum flow.

Adherence to permit conditions

We completed our review of compliance with permit conditions on April 11, 1975, before deadlines for the company to submit a compliance schedule progress report and the first discharge monitoring report.

Company comments

A company representative told us that it was very concerned over the cost of complying with the permit. The

¹A State representative told us that requiring the company to meet the final limitations by August 31, 1977, rather than July 1, 1977, was an oversight.

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company would be forced into a long-term debt without any return on the investment. He said that the primary treatment plant would cost about \$125,000 and that pilot studies made by the company indicated that upgrading the plant to secondary treatment level would cost an additional \$300,000.

He also said that if it decided to join the regional system it would incur the expense of acquiring the right-of-way to connect to the interceptor in addition to their share of the incremental costs to expand the treatment plant to accommodate the added volume of wastes. County and State personnel told us the industrial user cost data would not be known until about September 1975.

EXAMPLE NO. 2, MANUFACTURER OF GREASES AND OTHER SPECIALTIES FROM LUBRICATING OIL BASE STOCKS--NO EPA EFFLUENT LIMITATION GUIDELINES APPLICABLE TO COMPANY'S MANUFACTURING PROCESS

The manufacturer is located in Pennsylvania and routinely discharges waste water from two outfalls into the Allegheny River. One discharge is composed of once through noncontact cooling water, steam condensate, and clean rainwater. The other is industrial waste from the manufacturing operation.

The company applied for a discharge permit under the old Refuse Act program in July 1971. EPA issued a 5-year permit on February 28, 1974. Before the permit was issued, the company employed a consultant to design an addition to its waste water treatment system to meet the July 1, 1977, requirements.

Effluent limitations

EPA had no effluent limitation guidelines applicable to the company's manufacturing process. EPA region III based the final effluent limits in the permit on its general guidance, a State standard, and an EPA standard. The following table shows the final effluent limits in the permit for the industrial waste and the basis for each limitation.

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<u>Characteristic</u>	<u>Daily average</u>	<u>Basis</u>
BOD ₅	^a 2.5	Region III general guidance
TSS	^a 1.0	Region III general guidance
Oil and grease	^a 0.8	Region III general guidance
Phenols	0.1 lb	State standard
Temperature	110°F maximum	Region III general guidance
pH	6 to 9	EPA water quality standard

^aPounds per batch discharge.

Compliance schedule

The permit included a compliance schedule requiring the construction of additional treatment facilities. The schedule required:

Completion of final plans	June 30, 1974
Commencement of construction	September 30, 1974
Completion of construction	October 31, 1975
Attainment of operational level	January 30, 1976

Adherence to permit conditions

The company had not met the compliance schedule dates. The company was 5 months late in submitting final plans for the new treatment facility because of problems encountered when the planned system was tested. Construction was not started on September 30, 1974. The company has requested this date be changed to July 30, 1975, because of delays in equipment delivery.

A region III official told us that technically the company was in violation of its permit compliance schedule. However, region III would take no enforcement action because the company was working towards compliance with the July 1, 1977, requirements and even though delayed, it should be able to meet the requirements by that date. The permit would have to be amended to reflect the changes in compliance schedule dates.

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The company was submitting discharge monitoring reports, as required by the permit.

EXAMPLE NO. 3, PETROLEUM REFINER--PERMIT MODIFIED TO INCLUDE LESS STRINGENT EFFLUENT LIMITATIONS OF SUBSEQUENTLY PUBLISHED GUIDELINES

The company operates a refinery in Pennsylvania and discharges waste water from three points into the Schuylkill River. The company originally applied for a discharge permit pursuant to the old Refuse Act program administered by the Army Corps of Engineers. Region III issued a 5-year NPDES permit to the company on May 3, 1974.

Basis for effluent limitations

Region III based the final effluent limitations in the permit, required to be achieved by July 1, 1977, primarily on proposed effluent limitation guidelines for the petroleum refining point source category as published in the Federal Register on December 14, 1973.

Appeal of effluent limitations

The company appealed the final effluent limitations in the permit and requested that the less stringent limitations contained in the final effluent limitation guidelines be used in establishing the permit limitations. The final guidelines were published on May 9, 1974, 6 days after issuance of the permit.

Subsequently, proposed changes to the final guidelines were published on October 17, 1974, to redefine the size and process factors. These proposed changes were promulgated on May 20, 1975, as amendments to the final guidelines of May 9, 1974.

EPA, Pennsylvania, and the company agreed to settle the appeal through a stipulation. The final limits contained in the stipulation were based on the proposed guideline amendments of October 1974.

Effluent limitations

The following table compares the three changes in effluent limitations applicable to the company's major source of pollution, the discharge from its biotreatment of wastes.

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Characteristic	Proposed guidelines 12-14-73		Final guidelines 5-9-74		Proposed amended guidelines 10-17-74	
	Average	Maximum	Average	Maximum	Average	Maximum
	(pounds per day)					
BOD ₅	858	1,150	1,229	2,204	1,331	2,396
Chemical oxygen demand	7,488	9,360	8,541	16,458	9,291	17,905
Total organic carbon	1,268	1,560	-	-	-	-
TSS	566	702	800	1,150	871	1,476
Oil and grease	-	351	351	383	-	383
Ammonia as nitrogen	230	624	663	1,463	726	1,597
Sulfides	4.9	7.8	6.4	14.4	7.1	15.8
Zinc	6.7	19.2	-	-	-	-
Phenols	^a 0.05	^a 1.1	^a 8	^a 16	^a 8.7	^a 17.9
Total chromium	-	-	19.5	33.2	21.3	36.3
Hexavalent chromium	-	-	.31	.68	.34	.75
pH	6 to 9					

^amg/lSubmission of required reports

The company had been submitting compliance schedule data as required but had not been submitting discharge monitoring reports. The company's opinion was that the monitoring reports need not be submitted while the permit was under appeal.

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EXAMPLE NO. 4, PROCESSOR OF CHICKENS--LACK OF
EFFLUENT LIMITATION GUIDELINES

The company, located in Delaware, processes up to 100,000 chickens a day. It discharges treated waste from one outfall into a creek.

EPA issued the company a 3-year NPDES permit that became effective January 27, 1974. A 5-year permit was not issued because a stream study was to be done which could change the conditions of the permit.

Basis for effluent limitations

Final effluent guidelines were not issued for this industry as of April 1975. The final effluent limitations for BOD and TSS in the permit were based on EPA interim effluent guidance--meat products. Ammonia and oil and grease limits were based on region III standards. Since the permit was issued, proposed effluent limitation guidelines have been published for poultry-processing products. The following table compares the final permit limitations with the proposed guidelines.

<u>Characteristic</u>	<u>Limitations</u>			
	<u>Average daily</u>		<u>Maximum daily</u>	
	<u>Permit</u>	<u>Proposed guidelines</u>	<u>Permit</u>	<u>Proposed guidelines</u>
	<u>---(pounds)---</u>			
BOD ₅	173	189	519	377
TSS	261	254	522	508
Ammonia	100	-	150	-
Oil and grease	100	82	150	164
Fecal coliform	^a 200/100 ml	^a 400/100 ml max.		
pH	6 to 9	6 to 9		

^aColonies.

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The permit also limits ammonia, which is not included in the proposed standards for this industry.

Compliance schedule

The permit required the company to reduce total water usage, reduce dilution of lagoons, improve solids collection in the plant, and complete improvements in the lagoons by June 1, 1974. The company installed an air flotation unit to further clean up the water discharge after it leaves the lagoon. According to the company, the facilities cost over \$200,000 and between \$200 and \$300 a week to operate.

Adherence to permit conditions

The compliance schedule was based on what the company intended to do, but the company experienced delays in equipment delivery which resulted in violations of the compliance schedule. The company requested EPA to extend the compliance date, and the State concurred in the request. EPA expressed satisfaction with the efforts of the company to meet the intent of the compliance schedule and granted the request for an extension of the compliance dates.

The company's monitoring data for the quarter ended March 1975 showed the effluent limitations in the permit were being met.

EXAMPLE NO. 5, ABATTOIR--SHORT TERM PERMIT ISSUED BECAUSE COMPANY EXPECTS TO CONNECT TO A MUNICIPAL SEWAGE TREATMENT PLANT

The company, located in Pennsylvania, slaughters cattle, hogs, calves, and lambs for the manufacture of meat products. The company discharges waste water from a single point source into a river.

The company applied for a discharge permit under the old Refuse Act program in November 1971. Region III issued an NPDES permit to the company on June 25, 1974. The permit was to expire on December 31, 1975.

EPA issued a short-term permit, because the company planned to terminate its discharge into the river and connect to a municipal sewage treatment plant. The tie-in depends on the construction of a planned regional interceptor sewer. Pennsylvania's tentative priority list for fiscal year 1976 indicated that the interceptor may be funded in that year. EPA plans to reevaluate the permit when it expires in light of the funding situation at that time.

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Permit conditions

The permit contains the following interim effluent limitations.

<u>Characteristic</u>	<u>Daily average</u> (pounds)	<u>Daily maximum</u>	<u>Basis for limit</u>
BOD ₅	930	1,120	Permittee's application
TSS	240	280	Permittee's application
Oil and grease	60	72	Permittee's application
Fecal coliform	^a 10,000/100 (colonies per milliliter)		Permittee's application
pH	6 to 9		EPA water quality standard

^aAfter May 1, 1975, this limit was reduced to 400/100 (colonies per milliliter) at the request of the Pennsylvania Department of Environmental Resources.

In addition, four other requirements were imposed:

1. Pretreatment requirements specified by either the Pennsylvania Department of Environmental Resources, the regional sewer authority, or the municipal sewage treatment plant would be met no later than May 1, 1975.
2. Plans for achieving best practicable treatment or connecting to the municipal sewage plant by July 1, 1977, shall be transmitted to region III, and the Pennsylvania Department of Environmental Resources by October 1, 1975.
3. The discharge shall not cause a rise in the stream temperature of more than 5°F above the ambient or a maximum of 87°F--whichever is less; not to be changed by more than 2°F any 1-hour period.
4. A compliance schedule requiring construction of pretreatment facility by May 1, 1975.

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Adherence to permit conditions and company comments

The company was behind schedule in installing the required pretreatment facility.

It had not been able to obtain pretreatment standards from any of the several authorities involved. However, the company proceeded with the installation of pretreatment facilities hoping it would be able to comply with any pretreatment standards subsequently imposed.

The discharge monitoring reports submitted had not been completed, because fecal coliform test results were not shown. Region III was enforcing the compliance schedule but did not enforce the discharge limitations.

EXAMPLE NO. 6, MANUFACTURER OF PAPERBOARD PRODUCTS-- BOTH EPA AND STATE LIMITS IMPOSED FOR SAME POLLUTANTS AND PERMIT CONDITIONS CHALLENGED

The company, located in Illinois, manufactures paperboard products. It discharges waste water into the Mississippi River, considered an effluent-limited segment. The company submitted applications for discharge permits in June 1971 and April 1972 under the old Refuse Act program. Region V issued an NPDES permit to the company on November 13, 1974. The permit expires on August 31, 1979.

Basis for effluent limitations

EPA final effluent limitation guidelines for the pulp and paper industry were available and covered this company. Because State standards were more restrictive, EPA included two sets of effluent limits in the permits--State concentration and EPA weight limits. EPA weight limits are based on tons of production while State limits are based on the concentration of each particular effluent characteristic measured immediately after the final treatment process.

Effluent limitations

The following effluent limitations must be met by the company during the specified time frames.

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<u>Characteristic</u>	<u>Limitations</u>			
	<u>Daily</u> <u>average</u>	<u>Daily</u> <u>maximum</u>	<u>Concentration</u> <u>Daily</u> <u>average</u>	<u>Daily</u> <u>maximum</u>

Outfall 001 - December 13, 1974, until April 30, 1975

BOD ₅	Monitor only			
TSS	-	-	130 mg/l	260.0 mg/l
pH	6 to 9			

Outfall 001 - May 1, 1975, until March 31, 1977

BOD ₅	9,080 kg	18,160 kg	-	-
TSS	1,905 kg	3,810 kg	-	-
pH	6 to 9			

Outfall 001 - April 1, 1977, until August 31, 1979

BOD ₅	1.140 kg	2,290 kg	20 mg/l	50.0 mg/l
TSS	1,905 kg	3,810 kg	25 mg/l	62.5 mg/l
Iron	-	-	-	2.0 mg/l
Lead	-	-	-	0.1 mg/l
Manganese	-	-	-	1.0 mg/l
Total dissolved solids	-	-	-	3,500.0 mg/l
Oil and grease	-	-	-	15.0 mg/l
Temperature	-	-	(a)	-

Outfall 002 - December 13, 1974, until March 31, 1977

TSS	Monitor only
Total dissolved solids	Monitor only
Iron (total)	Monitor only
Manganese	Monitor only
Oil and grease	Monitor only
Boron	Monitor only
pH	6 to 9

Outfall 002 - April 1, 1977, until August 31, 1979

TSS	-	-	-	15.0 mg/l
Total dissolved solids	-	-	-	750.0 mg/l (net)
Iron (total)	-	-	-	2.0 mg/l
Manganese	-	-	-	1.0 mg/l
Oil and grease	-	-	-	15.0 mg/l
Boron	-	-	-	(b)

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^aTemperature limits:

1. The maximum temperature rise above natural temperatures shall not exceed 2.78°C (5°F) at the edge of the mixing zone.
2. Water temperature at representative locations of the edge of the mixing zone shall not exceed the maximum limits in the permit during more than 1 percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the temperature at such locations exceed the maximum permit limits by more than 3°F.
3. In the event the permittee is unable to comply with the above thermal limitations, he will provide sufficient off-stream, recirculating cooling capacity, designed for year-round operation. The blowdown (discharge water) from the system shall contain no slimeicide antifoulants, or corrosion inhibitors for which written approval has not been secured from the Regional Administrator and the Illinois Environmental Protection Agency.

^bLimited to level that will not cause receiving water to exceed the State water quality standard.

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Compliance schedule

The company was required to adhere to the following compliance schedule.

Completion of conversion to 100% secondary fiber furnish	March 1, 1975
Attainment of interim effluent limitations	May 1, 1975
Submission of final plans and specifications	July 1, 1975
Progress reports on stages 3 and 4	March 1, 1976
Progress reports on stages 3 and 4	October 1, 1976
Completion of construction	March 1, 1977
Start of full operation	April 1, 1977

Appeal of permit conditions

On November 25, 1974, the company requested an adjudicatory hearing, but EPA had not yet held the hearing by the time we completed our review in April 1975. The company challenged the following permit conditions.

1. Schedule of compliance

The company claimed it had a comprehensive water management program underway with the end objective of designing and constructing a waste water treatment facility capable of producing an effluent of quality which would consistently meet EPA requirements. It stated the final treatment facility could be built and in operation by June 1978 providing a very tight time schedule was followed. It wanted the compliance schedule amended to provide for attaining full operation on June 30, 1978.

2. Effluent limitations

The company stated that effluent limits based on EPA standards were acceptable, but it challenged the use of both EPA weight and State concentration limits.

3. Frequency of monitoring for BOD

The company challenged the need for monitoring BOD on a daily basis, stating the same information could be obtained with less frequent testing.

4. Monitoring requirements for boron

The company knew of no basis for inclusion of boron as an effluent characteristic.

5. Reporting requirements

The company challenged the requirement for submitting monitoring reports to both region V and the Illinois State water pollution control agency. It claimed it was unnecessary and redundant.

Regarding the company's request for a compliance schedule modification, we noted that the EPA Office of Enforcement, National Field Investigation Center, visited the plant in July 1974 and commented:

"The [company] has embarked on a comprehensive program to bring themselves into compliance with the Illinois Water Pollution Control Board Order of July 18, 1974. This program will bring them to levels of discharge better than BATEA [best available technology economically achievable] for the Paperboard From Waste Paper Subcategory of the Pulp, Paper, and Paperboard Point Source Category."

Since the company challenged most of the permit conditions, these conditions were not enforceable and therefore no violations were noted.

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Region V said on November 19, 1975, that the company had not accepted EPA's proposals for resolving the challenge and that the matter would be referred to an Administrative Law Judge for scheduling a prehearing conference.

EXAMPLE NO. 7, MANUFACTURER OF INORGANIC PIGMENTS-- COMPANY OPERATING UNDER STATE STANDARDS BEFORE ISSUANCE OF PERMIT AND EPA ENFORCEMENT ACTION

The company, a manufacturer of inorganic pigments, is located in Illinois and discharges into a segment of a creek which is designated effluent limited. The company applied for a discharge permit under the old Refuse Act in September 1971. Region V issued the company an NPDES permit on February 20, 1974, with an expiration date of December 31, 1978.

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Basis for effluent limitations

Final EPA effluent guidelines were not available for this industry when the permit was issued, and effluent limitations were based for the most part on Illinois effluent standards.

Effluent limitations

The permit contained the following effluent limitations.

<u>Characteristic</u>	<u>Daily maximum</u>	<u>Basis</u>
Cadmium (total)	.05 mg/l	Present quality plus .025 mg/l which is still more restrictive than State standard of 0.15 mg/l
Lead (total)	.1 mg/l	State standard
Cyanide	.025 mg/l	State standard
TSS	15 mg/l	State standard
Zinc	1 mg/l	State standard
Mercury (total)	.0005 mg/l	State standard
pH	6 to 9	EPA guidance

No discharge of floating solids or visible foam in other than trace amounts.

Compliance schedule

The company was within the required effluent limits at the time the permit was issued so no compliance schedule was included in the permit.

Adherence to permit conditions

EPA's records indicated that during the period of April to June 1974, the company exceeded effluent limits for mercury, lead, and total suspended solids. During the next period, July to September 1974, the company failed to monitor pH.

Enforcement actions

EPA issued a notification of violation on August 12, 1974, to the company. On October 29, 1974, EPA also issued an administrative order to the company citing violation of effluent limitations and failure to monitor pH. The company was also cited for failure to submit a notification of noncompliance and for not using a separate discharge monitoring report for each month.

On November 6, 1974, the company replied to the EPA order, giving the following explanations for the apparent violations:

1. Failure to monitor pH was an oversight.
2. The limits for lead and mercury were not actually exceeded. The apparent violations resulted from the testing laboratory failing to make the analysis to a low enough concentration.
3. The limit for total suspended solids was exceeded because the total suspended solids of the intake water was exceedingly high due to heavy rains and the lake "turning over."
4. A notice of noncompliance was not submitted because of inexperience in operating under the NPDES permit program and therefore was an oversight.
5. A separate discharge monitoring report was not submitted each month because the instructions for reporting were unclear.

Region V stated on November 19, 1975, that all discharge monitoring reports received from the company since issuance of the administrative order showed that the company was meeting all effluent limitations.

Company comments

An official of the company told us that his only complaint about the NPDES program was the excessive paperwork. He stated that the program did not add any additional effluent limitations for the company, since it was already operating under Illinois standards before receiving a permit.

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EXAMPLE NO. 8, MANUFACTURER OF CELLOPHANE--ALTERNATIVE FINAL EFFLUENT LIMITS COVER CONTINUED DISCHARGE INTO WATERWAY AND CONNECTION TO PUBLICLY OWNED TREATMENT PLANT

The company, located in Pennsylvania, manufactures polymeric-coated cellophane and researches and develops fibers and films. It discharges waste water from five outfalls into a tributary of the Delaware River. The company applied for a permit in June 1971 under the old Refuse Act program. Region III issued a 5-year NPDES permit to the company, effective August 30, 1974.

In December 1973 the company entered into an agreement with a Pennsylvania municipal authority to send industrial wastes resulting from its operations to a regional sewage treatment plant for which plans and specifications had been prepared and a Federal construction grant of \$24.3 million had been received.

We reviewed the permit effluent limitations for the company's process waste water discharge. The permit was written with two sets of final effluent limitations: one which will apply after the company connects to the regional system and the other which will apply if the company does not tie into the system by July 1, 1977.

Basis for effluent limitations

Final EPA guidelines for the industry had been published before the permit was issued. According to a region III engineer, however, the effluent limitations applicable after the company ties into the regional system were based on data furnished by the company and were more stringent than EPA would have imposed using the final guidelines. Of the final effluent limits applicable, if the company does not tie into the regional system by July 1, 1977, only the limits imposed for chemical oxygen demand and pH would be based on the final guidelines. The limits on biochemical oxygen demand and total suspended solids were based on the more stringent requirements of the Delaware River Basin Commission. The temperature limit was proposed by the company and was more stringent than the region III standard.

Effluent limitations

The permit contained the following effluent limitations for the discharge we reviewed.

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<u>Characteristic</u>	<u>Limitations</u>	
	<u>Daily average</u>	<u>Daily maximum</u>
(pounds)		
(From 8-30-74 to 6-30-77 or date of tie-in to regional system.)		
Temperature	Not to exceed 104°F	
Chemical oxygen demand	8,816	35,368
BOD ₅	4,089	14,349
TSS	2,353	18,511
pH	6 to 9	

(From date of contribution of part of effluent to the regional system to 8-30-79.)

Temperature	Not to exceed 104°F	
Chemical oxygen demand	959	5,754
BOD ₅	38	211
TSS	383	1,343
pH	6 to 9	

(From 7-1-77, if company has not tied in to regional system, to 8-30-79, or date of tie-in.)

Temperature	Not to exceed 104°F	
Chemical oxygen demand	8,816	24,390
BOD ₅ (note a)		
TSS (note b)		
pH	6 to 9	

^aDelaware River Basin Commission allocation of first-stage oxygen demand for the company's plant is 670 pounds a day. This is equal to 529 pounds a day of BOD₅. Any remaining wastes after or in lieu of a tie-in to the regional system must not exceed this allocation.

^bTotal suspended solids load limit for this plant is 2,192 pounds a day, or 90 percent reduction of total suspended solids in raw waste load, whichever is more stringent. This requirement will apply in lieu of a tie-in to the regional system.

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Compliance schedule

The permit contained the following compliance schedule.

Submit to EPA region III an executed contract with the Pennsylvania municipal authority.

August 31, 1974

Reports of progress toward contribution of wastes to the regional system.

Every 6 months

Adherence to permit conditions

The company submitted the required compliance and discharge monitoring reports. In a March 5, 1975, memorandum, a region III official reported that an inspection of the company's plant to verify compliance with permit conditions disclosed no discharge violations. The company reported to EPA on March 21, 1975, that design work necessary for the tie-in to the regional system was more than 75 percent completed.

A region III representative told us in April 1975, that (1) construction of the regional project had not yet started but completion of construction was planned for January 1977, (2) a pumping station needed to convey the company's waste water to the regional treatment plant might be funded in January 1976, and (3) it was too early to tell whether the company would be able to comply with the July 1, 1977, deadline.

EXAMPLE NO. 9, PRODUCER OF CHLORINE AND CAUSTIC SODA--FINAL GUIDELINES LESS RESTRICTIVE THAN SOME OF THE PERMIT EFFLUENT LIMITS

The company, located in Wisconsin, produces chlorine and caustic soda by electrolysis using mercury cells. The company discharges its waste water into the Wisconsin River, which is designated as effluent limited. The company applied for a discharge permit under the old Refuse Act program in November 1971. Region V issued the company an NPDES permit on September 28, 1973, which expires on July 31, 1978. Wisconsin modified the permit in October 1974.

Basis for effluent limitations

EPA final guidelines were published after issuance of the permit. The permit effluent limits for suspended solids and pH were based on EPA interim guidance. The limits for

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mercury and residual chlorine were originally based on EPA national policy but were subsequently modified at the permittee's request.

Effluent limitations

The following table shows the permit effluent limits and the effluent limits contained in EPA's final guidelines.

<u>Characteristic</u>	<u>Discharge limitations</u>					
	<u>From date of permit until 12-31-76</u>		<u>From 1-01-77 until 7-31-78</u>		<u>EPA final guidelines</u>	
	<u>Daily average</u>	<u>Daily maximum</u>	<u>Daily average</u>	<u>Daily maximum</u>	<u>Daily average</u>	<u>Daily maximum</u>
	<u>(kilograms)</u>					
Net suspended solids	270	540	46	92	99	198
Mercury	.060	.136	.045	.091	.045	.091
Residual chlorine	varying levels		^a .5	^a 1	N/A	N/A
pH	6 to 9		6 to 9		6 to 9	
Temperature	-	-	-	Max. 5°F increase at edge of mixing zone, maximum of 50% of river or 1,000 ft. from point of discharge	N/A	N/A

^amg/l

Compliance schedule

The permit contained the following compliance schedule.

Report of progress	March 31, 1974
Completion of final plans	December 31, 1974
Commence construction	June 30, 1975
Report of construction progress	March 31, 1976
Completion of construction	September 30, 1976
Attainment of operational level	December 31, 1976

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Adherence to permit conditions and enforcement actions

The company failed to submit a notification of completion of final plans by December 31, 1974, and the State issued a notification of noncompliance on February 13, 1975.

On October 27 and 28, 1973, the company exceeded its daily maximum limits for mercury. EPA issued an administrative order on December 18, 1973, and on December 28, 1973, the company replied that necessary corrections had been made. On February 12, 1974, another order was issued which dealt with excess mercury which occurred on January 4, 1974. The order required the company to use extended sampling procedures and report the results when any one part of a 24-hour sample exceeded the daily maximum mercury limit. On June 10, 1974, another order was issued citing the many violations of pH and residual chlorine limits and the failure of the company to submit reports explaining the noncompliance. The company replied on June 24, 1974, outlining the difficulty it had in meeting the compliance requirements, its belief that it had been complying with reporting requirements, and its opinion that the pH and chlorine limits could not be reasonably met. On July 3, 1974, it requested changes in the initial chlorine and pH limits and a schedule for achieving the original final limits on chlorine earlier than originally scheduled. These requests were approved, and the permit was modified on October 5, 1974. A letter from EPA on February 27, 1975, indicated it was satisfied with the company's compliance with the administrative order and planned no further enforcement action.

Company comments

A company official said his main criticism of the permit program was that maximum effluent limits were overly strict and that some violation of the limits was almost inevitable because of fluctuations in the production process. This official stated that the only construction currently underway was for pH treatment and completion was expected about June 30, 1975. He stated that the company had spent \$2 million on pollution control and had added two people to handle the monitoring and reporting requirements. In his opinion, EPA and the State failed to consider whether the reduction in pollution to be achieved was worth the cost.

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EXAMPLE NO. 10, MANUFACTURE OF PAPER PRODUCTS--FINAL
GUIDELINES PUBLISHED AFTER ISSUANCE OF PERMIT WERE
NOT APPLICABLE TO PERMITTEE'S PRODUCTS AND
ADJUDICATORY HEARING WAS PENDING

The company, a manufacturer of paper products, is located in Wisconsin and discharges into the Fox River, designated effluent limited. The company applied for a discharge permit under the Refuse Act in March 1971. Wisconsin issued an NPDES permit to the company on March 22, 1974. The permit expires on December 31, 1978.

Basis for effluent limitations

Final EPA guidelines were not available for the industry when the permit was issued, and the effluent limits were based on EPA interim guidance and State standards. EPA published final guidelines for the pulp and paper industry in May 1974 but according to an EPA official were not applicable to the type of paper product manufactured by the company.

Effluent limitations

The permit contained the following effluent limits which had to be met within the specified time frames.

<u>Characteristic</u>	<u>Limitations</u>		<u>Basis</u>
	Daily	Daily	
	average	maximum	
	(kilograms)		
(Mar. 22, 1974 - June 30, 1977)			
BOD ₅	7,795	23,390	State order
Suspended solids	9,140	27,410	State order
pH	6 to 9		EPA interim guidance
(July 1, 1977 - Dec. 31, 1978)			
BOD ₅	2,630	8,040	EPA interim guidance
Suspended solids	2,680	8,040	EPA interim guidance
Settleable solids	-	^a 0.1	EPA interim guidance
pH	6 to 9		EPA interim guidance
^a mg/l			

The permittee was also required to initiate a study to determine the measures to be taken to comply with Wisconsin water quality standards for temperature-mixing-zone guidelines.

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Compliance schedule

Because the company was not meeting final effluent limits when the permit was issued, the following compliance schedule was made part of the permit.

Progress report	September 30, 1974
Preliminary plans	March 31, 1975
Final plans	December 31, 1975
Commence construction	June 30, 1976
Complete construction	March 31, 1977
Attain operational level	June 30, 1977

Thermal study:

Preliminary report	December 31, 1974
Progress report	June 30, 1975
Progress report	March 31, 1976
Final report	September 30, 1976

Appeal of permit conditions

On May 14, 1974, the company requested an adjudicatory hearing in which it challenged the following permit conditions:

1. The definition of best practicable treatment for various types of pulp and paper plants.
2. Effluent limitations for BOD and suspended solids.
3. Monitoring requirements.

According to region V, the State and the company signed a stipulation on March 4, 1975, and a modified permit, issued on May 26, 1975, allowed net effluent limitations and increased the allowable discharge of suspended solids.

Adherence to permit conditions

No permit violations had been noted.

TEN EXAMPLES OF MUNICIPAL NPDES PERMITS

The 10 examples discussed below are representative of the 120 municipal permits included in our sample. The examples highlighted individual instances of progress and problems of implementing the NPDES permit program as discussed in the body of the report.

The glossary of terms and definitions in appendix IV will be helpful in understanding the effluent limitations contained in the permits.

EXAMPLE NO. 1--PLANT CAPABLE OF MEETING JULY 1, 1977,
WATER QUALITY REQUIREMENTS WITHOUT UPGRADING

The municipal waste water treatment plant is located in Wisconsin and discharges into a river which is classified as water quality limited. The plant has a treatment capacity of 4.35 million gallons a day and was designed to obtain 95 percent BOD and 90 percent suspended solids removal.

The municipality submitted its permit application on September 19, 1973, and the State issued a NPDES permit on October 30, 1974. The permittee is able to achieve required effluent limits, but the permit expires on June 30, 1977, to coincide with a planned basin study for the area.

Effluent limitations

The facility must maintain the following effluent limitations.

<u>Characteristic</u>	<u>Limitations</u>	
	<u>Monthly average</u>	<u>Weekly average</u>
Outfall 001:		
BOD ₅	20 mg/l	30 mg/l
Suspended solids	20 mg/l	30 mg/l
Fecal coliform	200/100 ml	400/100 ml
pH	6 to 9	
Outfall 002 (bypass):		
Fecal coliform	400/100 ml	

Enforcement actions

The November 1974 discharge monitoring report indicated the treatment plant exceeded its monthly average for suspended solids and had not reported suspended solids on a daily basis. The State had requested information from its district office concerning the violation, but the matter was unresolved as of February 27, 1975. A municipal official said the plant had difficulty meeting the suspended solids limits during wet weather, but he did not consider it a serious problem. Wisconsin officials told us in November 1975 that, on the basis of recent discharge monitoring reports, the discharger was now in compliance with the permit limitations.

Municipal comments

A municipal official told us that he believed the permit limits were reasonable and that the facility should be able to comply. This official was optimistic about the NPDES program and felt the time frames were reasonable. He said that another good feature of the program was that it forces industries to more closely monitor their discharges into municipal facilities and as a result they are watching their water usage more closely.

EXAMPLE NO. 2--FUNDING PROVIDED FOR UPGRADING
TREATMENT PLANT BUT NOT PROVIDED FOR IMPROVING
COLLECTION SYSTEM

The municipal waste water treatment plant, located in Illinois, discharges into the East Fork of the La Moine River, designated water quality limited. On April 23, 1973, when the municipality applied for a discharge permit, it was operating a .5 million gallons a day facility which was obtaining 30 to 65 percent BOD removal. Region V issued a NPDES permit on July 12, 1974. It expires February 28, 1979.

Effluent limitations

The following effluent limitations, based generally on State standards, were to be achieved in the time frames specified.

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<u>Characteristic</u>	<u>Limitations</u>	
	<u>Interim</u> (4/12/74-5/31/75)	<u>Final</u> (6/1/75-2/28/79)
BCP5	35 mg/l	4 mg/l
Suspended solids	30 mg/l	5 mg/l
Ammonia nitrogen	-	WQ determinant
Residual chlorine	-	0.75 mg/l
Fecal coliform	200/100 ml	200/100 ml
pH	6 to 9	6 to 9

Compliance schedule

The municipality had received a Federal construction grant on June 30, 1973, and an additional grant on February 11, 1974. When the permit was issued, construction of new facilities was already underway. The following compliance schedule, included in the permit, was an estimate of the time needed to complete ongoing construction.

Progress report	December 31, 1974
Complete construction	March 31, 1975
Attain operational level	May 31, 1975

Also, the municipality needs to improve its collection system. This project, however, is ranked 839 out of 979 projects on the fiscal year 1975 State priority list, and Federal grant funds are not currently available for the project.

Enforcement actions

As of April 8, 1975, EPA had not received the progress report due on December 31, 1974, and the discharge monitoring report due on January 28, 1975. As of April 1975, EPA apparently had taken no followup action to determine why these reports had not been submitted.

According to region V, on July 17, 1975, the region sent the permittee a notification of noncompliance letter requiring submission of the discharge monitoring reports and a report on completion of construction. The permittee complied on July 24, 1975, but because the discharge monitoring reports were incorrectly filled out a second letter was sent to the permittee on August 20, 1975, and the reports were resubmitted correctly filled out. The permittee attained the new operational level in accordance with permit requirements.

EXAMPLE NO. 3--PERMITTEE ISSUED SHORT-TERM PERMIT
AND REQUIRED TO APPLY FOR FUNDING OF BYPASS
WASTE TREATMENT

The municipal waste water treatment plant, located in Illinois, has a treatment capacity of 3.4 million gallons a day and discharges into the Rock River, which is classified as water quality limited. Application for a discharge permit was submitted on May 7, 1974, and region V issued a NPDES permit to the municipality on July 31, 1974. The permit expires February 1, 1977.

Effluent limitations

The treatment plant must meet the following State water quality standards.

<u>Characteristic</u>	<u>30-day arithmetic mean</u>		<u>7-day arithmetic mean</u>	
	<u>Concentration</u>	<u>Weight</u>	<u>Concentration</u>	<u>Weight</u>
BOD ₅	20 mg/l	258 kg/day	30 mg/l	-
Suspended solids	25 mg/l	322 kg/day	38 mg/l	-
Fecal coliform	200/100 ml	-	400/100 ml	-
pH	6 to 9 at all times			

There shall be no discharge of floating solids or visible foam in other than trace amounts.

(The weight limits in the permit were computed using the concentration limits (expressed in mg/l) and the design flow of 3.4 million gallons a day.)

Compliance schedule

The following compliance schedule was included in the permit for bypass waste treatment.

- "a) Permittee shall formally apply for necessary grant funds to provide the necessary bypass waste treatment within two months after the effective date of this permit if application has not been filed previously.
- "b) Permittee must provide optimum operation and maintenance of the existing waste treatment facility and the maximum practical flow shall

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be conveyed to the treatment facility to produce as high quality of effluent as reasonably possible.

"c) Permittee upon receipt of grant funding prior to expiration of this permit shall achieve compliance with required effluent limitations in accordance with the following schedule:

- 1) Submit preliminary plans within 3 months after receipt of Step I funding.
- 2) Submit final plans and specifications within 9 months after receipt of Step II funding.
- 3) Commence construction within 3 months after receipt of Step III funding.
- 4) Submit a construction progress report 6 months after start of construction.
- 5) Complete construction within 12 months after start of construction.
- 6) Operational level attained 1 month after completion of construction."

On September 30, 1974, the municipality requested and received a 60-day extension for compliance with the schedule. The municipality submitted a grant application to the State in November 1974.

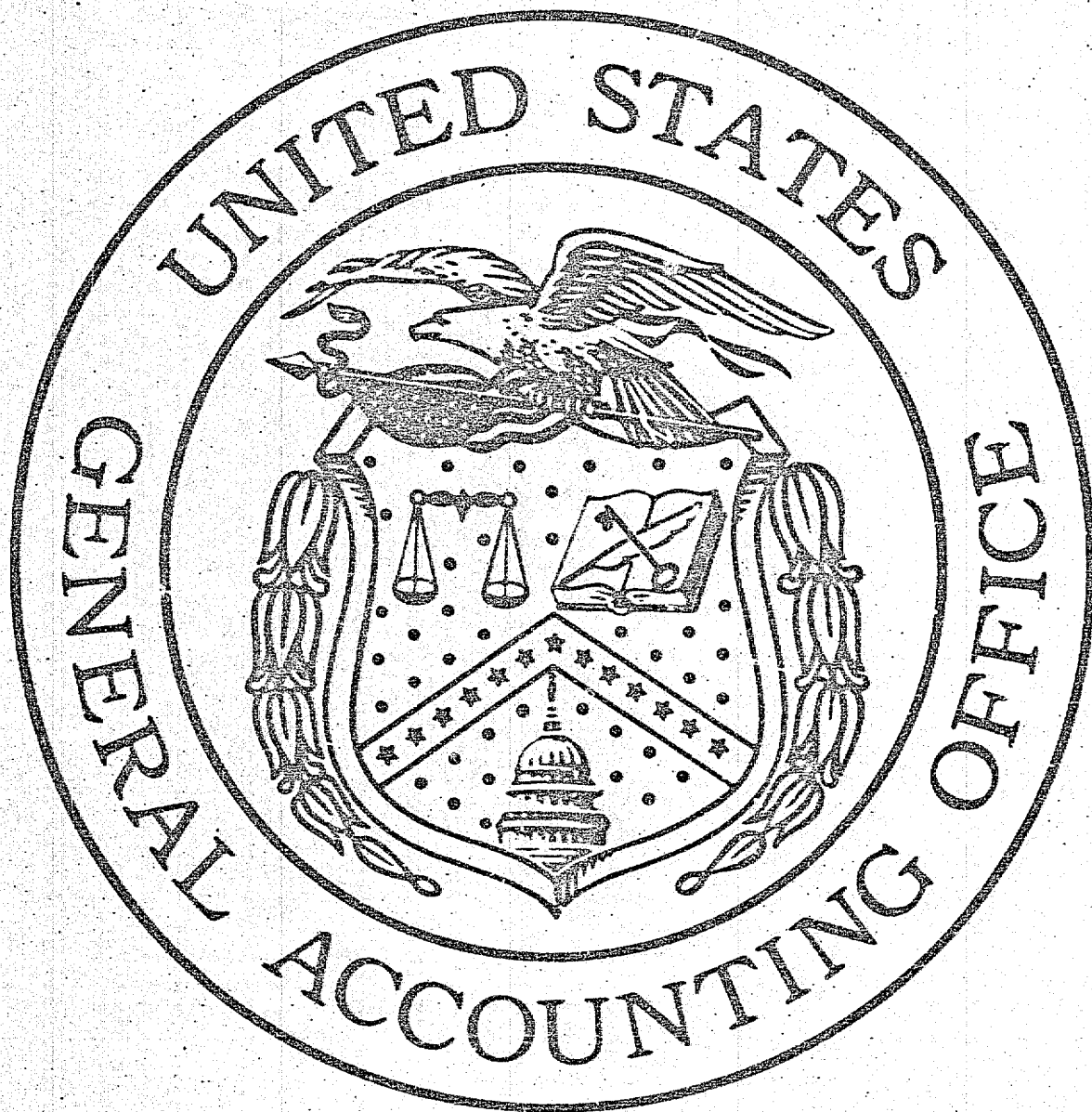
Enforcement actions

On January 3, 1975, region V notified the municipality that its discharge monitoring report showed that it had slightly exceeded the permit limits for BOD₅ and suspended solids. Also, the municipality failed to report the level of residual chlorine in its discharge. The municipality responded on January 8, 1975, that it had reported maximum daily test values for BOD₅ and suspended solids rather than the arithmetic mean and that the failure to report the level of residual chlorine was an oversight.

Municipality's comments

Municipal officials told us that the biggest problem with the NPDES program was the monitoring and reporting requirements. They said that monitoring was a full day's job and was a burden on their three-man staff. They also felt a simpler system could be developed to report effluents rather than using the arithmetic mean. They said, however, they were not having any serious problems in meeting the effluent limits.

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EXAMPLE NO. 4--SHORT-TERM PERMIT ISSUED;
FUNDING IS UNLIKELY FOR NEEDED UPGRADING

The municipal waste water treatment plant, located in Wisconsin, discharges into a creek designated as water quality limited. The State issued the municipality a permit on October 30, 1974. The permit expires on April 30, 1977. The municipality was number 115 out of 515 projects on the fiscal year 1975 State priority list, but only the first 80 projects were expected to be funded.

Basis for effluent limitations

The State based the permit limitations on the treatment plant's current capability.

Effluent limitations

The permit prescribes the following effluent limitations.

Characteristic	Limitations			
	Monthly		Weekly	
	Weight (note a)	Concentration	Weight (note a)	Concentration
BOD ₅	1,324 kg/day	140 mg/l	1,986 kg/day	210 mg/l
Suspended solids	1,891 kg/day	200 mg/l	2,837 kg/day	300 mg/l
Fecal coliform	-	200/100 ml	-	400/100 ml
pH	6 to 9			

^aThese limits based on a design flow of 2.5 million gallons a day.

Compliance schedule

No compliance schedule was included in the permit, because it was unlikely a Federal construction grant would be received.

Enforcement actions

There were no violations of the permit as of February 27, 1975. Region V said on November 19, 1975, that the permittee experienced some problems with its chlorinator during July and August 1975 but that these problems have now been corrected.

EXAMPLE NO. 5--PERMITTEE AWARDED A CONSTRUCTION
GRANT AND PROGRESSING TOWARD THE 1977 REQUIREMENT

The municipal waste water treatment plant, located in Pennsylvania, was operating a 1.0 million gallons a day primary treatment facility. The municipality applied for a NPDES permit on April 18, 1973, and region III issued a 5-year NPDES permit to the municipality on March 31, 1974.

Basis for effluent limitations

The permit required the municipality to achieve secondary treatment not later than July 1, 1977.

Effluent limitations

The permit prescribes the following effluent limitations.

	Average effluent concentration		Average effluent loadings	
<u>Characteristic</u>	<u>30-consecutive day period</u>	<u>7-consecutive day period</u>	<u>30-consecutive day period</u>	
Interim effluent limitations:				
BOD ₅	130 mg/l	195 mg/l	1,080 lbs/day	488 kg/day
Suspended solids	130 mg/l	195 mg/l	1,080 lbs/day	488 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			
Final effluent limitations:				
BOD ₅	30 mg/l	45 mg/l	250 lbs/day	114 kg/day
Suspended solids	30 mg/l	45 mg/l	250 lbs/day	114 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			

Compliance schedule

The municipality had received a Federal construction grant on March 22, 1973, to upgrade its plant to secondary treatment. No compliance schedule was contained in the permit although the grant was awarded before permit issuance. The municipality was required to submit a compliance schedule

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by October 30, 1974, but this schedule was not submitted until January 9, 1975. The consulting engineers told region III that construction started July 15, 1974. They expected construction to be completed by September 30, 1975, and final effluent limitations to be achieved by October 30, 1975.

Enforcement actions

The municipality had not submitted all required discharge monitoring reports. A report that was submitted showed at least one effluent limit was exceeded. Region III considered the violations to be minor and took no enforcement action.

EXAMPLE NO. 6--UNREALISTIC 5-YEAR PERMIT

The municipal authority, located in Pennsylvania, operates a primary treatment plant designed for a flow of 12 million gallons a day. It applied for a NPDES discharge permit on September 27, 1973. Region III issued a 5-year permit to the authority on June 26, 1974. Because Federal construction funds are not available, it is unlikely the authority will be able to meet the 1977 requirements.

Basis for effluent limitations

The permit required the municipal authority to achieve secondary treatment by September 30, 1976.

Effluent limitations

The authority was to achieve the following interim and final effluent limitations.

APPENDIX III

APPENDIX III

<u>Characteristic</u>	<u>Average effluent concentrations</u>		<u>Average effluent loadings</u>
	<u>30-consecutive day period</u>	<u>7-consecutive day period</u>	<u>30-consecutive day period</u>
Interim effluent limitations:			
BOD ₅	120 mg/l	180 mg/l	12,000 lbs/day 5,400 kg/day
Suspended solids	70 mg/l	105 mg/l	7,000 lbs/day 3,150 kg/day
Fecal coliform	^a 200/100 ml	^a 400/100 ml	-
pH	6 to 9 at all times		-
Final effluent limitations:			
BOD ₅	30 mg/l	45 mg/l	3,000 lbs/day 1,350 kg/day
Suspended solids	30 mg/l	45 mg/l	3,000 lbs/day 1,350 kg/day
Fecal coliform	^a 200/100 ml	^a 400/100 ml	-
pH	6 to 9 at all times		-
Dissolved oxygen	Minimum of 5 mg/l at all times		

^aShall not exceed 1,000/100 ml in 10 percent of samples taken during specified time period.

Compliance schedule

The compliance schedule required construction to begin by December 31, 1974, and be completed by June 30, 1976.

When the permit was issued, the authority's project was ranked 113 on the Pennsylvania fiscal year 1975 priority list of 192 projects. The project did not receive funds in fiscal year 1975, and it was not on a tentative list of projects fundable in fiscal year 1976.

Region III told us it planned to amend the present permit after negotiation to develop more reasonable compliance dates; also, if legislative relief from the 1977 requirements was not provided in the interim, the term of the permit would be shortened to comply with EPA headquarters policy.

Enforcement actions

Fecal coliform test results were not being reported to EPA in the discharge monitoring reports, because the municipal authority did not have equipment needed for making the tests. Region III told the authority that it was not complying with the discharge monitoring reporting requirements and an outside laboratory should be used to make the fecal coliform tests if the authority did not have the equipment needed.

Municipality's comments

A representative of the municipal authority said the authority had spent \$173,000 for plans and specifications to upgrade the plant to secondary treatment. These plans were submitted to the Pennsylvania Department of Environmental Resources, but they were not submitted to region III because the project was below the funding line. The authority is currently paying off construction debts for the present plant and will not go forward with construction required to achieve secondary treatment until a Federal grant is awarded. The representative also said that, since Federal funding was not available, it would be impossible for the authority to meet the July 1, 1977, deadline.

EXAMPLE NO. 7--UNREALISTIC PERMIT

The municipal authority, located in Pennsylvania, operates a .5 million gallons a day primary treatment plant. They applied for a permit on May 21, 1973, and region III issued a 5-year NPDES permit on March 19, 1974. Because Federal construction funds were not available, it is unlikely the authority will achieve secondary treatment by July 1, 1977.

Basis for effluent limitations

The permit requires the treatment plant to achieve secondary treatment by July 1, 1977.

Effluent limitations

The permit imposed the following interim and final effluent limitations.

APPENDIX III

<u>Characteristic</u>	<u>Average effluent concentrations</u>		<u>Average effluent loadings</u>	
	<u>30-consecutive day period</u>	<u>7-consecutive day period</u>	<u>30-consecutive day period</u>	
<u>Interim effluent limitations:</u>				
BOD ₅	130 mg/l	195 mg/l	542 lbs/day	244 kg/day
Suspended solids	130 mg/l	195 mg/l	542 lbs/day	244 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			
<u>Final effluent limitations:</u>				
BOD ₅	30 mg/l	45 mg/l	188 lbs/day	85 kg/day
Suspended solids	30 mg/l	45 mg/l	188 lbs/day	85 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			

Compliance schedule

The authority was required to submit a compliance schedule to region III within 6 months of the permit's effective date, showing actions and dates to be taken to achieve secondary treatment. On December 19, 1974, 2 months after the schedule was due, EPA notified the authority by letter that it had 5 days to submit the required schedule. The authority's consulting firm submitted a schedule, which indicated compliance by June 1977; however, the schedule was conditional on a Federal grant being offered by January 1975.

When the permit was issued, the project was ranked 118 on the Pennsylvania fiscal year 1975 priority list of 192 projects. The project was not fundable in fiscal year 1975 and was not included on a tentative list of projects fundable in fiscal year 1976.

Enforcement actions

As of April 7, 1975, the authority had not submitted a discharge monitoring report. A representative of the authority said it did not have the equipment required to make the fecal coliform test. Also, the plant was experiencing a flow greater than that allowed by the permit.

Region III had not accepted the submitted compliance schedule, but we were told that the region planned to terminate the present permit and to issue a new permit which would expire on June 30, 1977.

Municipality's comments

The authority told us that it spent \$80,000 for plans and specifications to upgrade the plant to secondary treatment. The plans and specifications had been submitted to the Pennsylvania Department of Environmental Resources but not to region III because the project was below the funding line on the project priority list. The authority will not pay off the construction indebtedness for its present plant until 2000, and it will not proceed with secondary treatment construction until it receives a Federal construction grant.

EXAMPLE NO. 8--UNREALISTIC PERMIT

The municipal authority, located in Pennsylvania, operates a primary treatment plant designed for an average flow of .16 million gallons a day. The authority applied for a permit on May 14, 1973, and region III issued a 5-year NPDES permit on November 13, 1974. Because Federal construction funds were not available, the authority probably will not meet the 1977 requirements.

Basis for effluent limitations

Effluent limitations were based partly on State effluent requirements which were higher than secondary treatment levels. The authority was required to achieve these treatment levels by July 1, 1977.

Effluent limitations

The authority was to achieve the following interim and final effluent limitations.

APPENDIX III

APPENDIX III

<u>Characteristic</u>	<u>Average effluent concentrations</u>		<u>Average effluent loadings</u>	
	<u>30-consecutive day period</u>	<u>7-consecutive day period</u>	<u>30-consecutive day period</u>	
Interim effluent limitations:				
BOD ₅	130 mg/l	195 mg/l	325 lbs/day	148 kg/day
Suspended solids	130 mg/l	195 mg/l	325 lbs/day	148 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			
Final effluent limitations:				
BOD—total (note a)	50 mg/l	50 mg/l	125 lbs/day	56.7 kg/day
Suspended solids	25 mg/l	25 mg/l	63 lbs/day	28.6 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			
Dissolved oxygen	A minimum of 5 mg/l at all times			

^aBOD—total is a State-imposed limit that is more stringent than BOD₅.

Compliance schedule

By June 13, 1975, the authority was required to submit to region III a compliance schedule to meet the 1977 requirements.

The authority applied for a Federal construction grant to upgrade its plant to meet permit requirements. The project was ranked 149 on the Pennsylvania fiscal year 1975 project priority list. Federal funding was not adequate to reach this project, because the available funds covered only the first 58 projects. A tentative priority list for fiscal year 1976 indicates this project again may not be funded because it is ranked too low.

Municipality's comments

An authority official told us on May 13, 1975, that it did not plan to take any additional action to meet the permit requirements for July 1, 1977, until it received a Federal construction grant.

EXAMPLE NO. 9--FIVE-YEAR PERMIT COMPLIANCE
PROBABLE ALTHOUGH FEDERAL GRANT WAS DELAYED

The area joint sewer authority, located in Pennsylvania, operates a 1.0 million gallons a day primary treatment plant. The authority applied for a permit for its present plant on April 19, 1973. Region III issued a 5-year NPDES permit on January 30, 1974. The authority is under orders by the State to upgrade to secondary treatment and plans to do this by constructing a new plant and phasing out the present plant.

The authority applied for Federal construction grant funds to build a new treatment plant. The State Department of Environmental Resources certified the project to region III on April 23, 1973. The project was included on the Pennsylvania fiscal year 1974 priority list and sufficient Federal funds were available to fund this project. However, it was June 5, 1975, before region III approved the project and made a grant offer to the authority.

The project could not be funded until EPA approved the State's project priority list for fiscal year 1974. Such approval was not given until January 1974. The project was further delayed because of the need to resolve a design capacity question for the proposed treatment plant and to obtain agreements between the authority and adjacent communities which plan to use the new plant.

Effluent limitations

The authority was only required to maintain at least their present level of effluent quality. Region III, however, did not know the quality of the effluent, because information on the permit application was inadequate.

The primary treatment plant was to stop discharging effluent as soon as possible but not later than July 1, 1977.

Compliance schedule

Region III gave the authority 6 months to submit a compliance schedule showing construction time frames for the new plant. The schedule was not submitted, however, because the authority contended a realistic schedule could not be developed until it received a Federal construction grant. Region III's Enforcement Division referred the authority's failure to submit the compliance schedule to its Legal Branch but no legal action was taken.

APPENDIX III

APPENDIX III

A region III permit program official told us the permit was actually unenforceable because (1) it did not contain specific interim effluent limitations and (2) a realistic compliance schedule could not be established until a Federal grant was made. Region III offered a construction grant to the authority on June 5, 1975, and planned to reissue the permit to include specific interim effluent limitations and a realistic compliance schedule.

Authority comments

An authority representative told us that since a construction grant has been awarded the authority should be able to construct the new treatment plant by July 1, 1977.

EXAMPLE NO. 10--REALISTIC 5-YEAR PERMIT

The municipal authority, located in Pennsylvania, operated a 2.0 million gallons a day primary treatment plant. The authority applied for a permit on March 21, 1974, and region III issued a 5-year permit on August 28, 1974. The permit required the authority to achieve a higher than secondary level of treatment by March 31, 1975.

Effluent limitations

The permit prescribed the following interim and final effluent limitations.

<u>Characteristic</u>	<u>Average effluent concentrations</u>		<u>Average effluent loadings</u>	
	<u>30-consecutive day period</u>	<u>7-consecutive day period</u>	<u>30-consecutive day period</u>	
Interim effluent limitations:				
BOD ₅	65 mg/l	98 mg/l	1,630 lbs/day	734 kg/day
Suspended solids	65 mg/l	98 mg/l	1,630 lbs/day	734 kg/day
Fecal coliform	200/100 ml.	400/100 ml	-	-
pH	6 to 9 at all times			
Final effluent limitations:				
BOD ₅	20 mg/l	20 mg/l	500 lbs/day	227 kg/day
Suspended solids	20 mg/l	20 mg/l	500 lbs/day	227 kg/day
Fecal coliform	200/100 ml	400/100 ml	-	-
pH	6 to 9 at all times			

APPENDIX III

APPENDIX III

Compliance schedule

The authority was awarded a Federal construction grant on August 28, 1972, to upgrade their primary treatment plant. Construction was in process when the permit was issued and the following compliance schedule was contained in the permit.

Begin construction	September 30, 1974
Complete construction	December 31, 1974
Attain final limitations	March 31, 1975

Adherence to permit conditions

We found no evidence that the authority had notified region III as to whether the final limitations had been achieved, as required. The first discharge monitoring report which would show the upgraded plant performance compared to the permit limitations was not due until after we completed our review.

Municipality's comments

The consulting engineer of the municipal authority told us that construction was completed and the new plant had been operational since January 1975.

GLOSSARY OF TERMS
AND DEFINITIONS

Biochemical oxygen demand
(BOD)

A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. Large amounts of organic waste use up large amounts of dissolved oxygen, thus the greater the degree of pollution, the greater the BOD.

BOD₅

The amount of dissolved oxygen consumed in 5 days by biological processes breaking down organic matter in an effluent.

Chemical oxygen demand
(COD)

A measure of the amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water.

Dissolved oxygen

The oxygen dissolved in water or sewage. Adequately dissolved oxygen is necessary for the life of fish and other aquatic organisms and for the prevention of offensive odors. Low dissolved oxygen concentrations generally are due to discharge of excessive organic solids having high BOD, the result of inadequate waste treatment.

Dissolved solids

The total amount of dissolved material, organic and inorganic, contained in water or wastes. Excessive dissolved solids make water unpalatable for drinking and unsuitable for industrial uses.

Effluent limited

Any segment of a water basin where water quality is meeting and will continue to meet applicable water quality standards or where the water

APPENDIX IV

Effluent limited (continued)

Fecal coliform bacteria

kg

kg/l

mgd

mg/l

ml

Organic

pH

Phenols

Settleable solids

Suspended solids

APPENDIX IV

quality will meet water quality standards after the application of effluent limitations based on best practicable control technology or secondary treatment.

A group of organisms common to the intestinal tracts of man and animals. The presence of fecal coliform bacteria in water is an indicator of potentially dangerous bacterial contamination.

kilogram.

kilograms per liter.

million gallons a day.

milligrams per liter.

milliliter.

Referring to or derived from living organisms; in chemistry any compound containing carbon.

A measure of the acidity or alkalinity of a material. pH is represented on a scale of 0 to 14 with 7 representing a neutral state, 0 representing the most acid, and 14 the most alkaline.

A group of organic compounds that in very low concentrations produce a taste and odor problem in water. In higher concentrations, they are toxic to aquatic life.

Bits of debris and fine matter heavy enough to settle out of waste water.

Small particles of solid pollutants in sewage that contribute to turbidity and that resist separation by conventional means.

APPENDIX IV

Total suspended non-
filterable solids (TSS)

Water quality segment

APPENDIX IV

Small particles of solid
pollutants in sewage that
contribute to turbidity and
that resist separation by
conventional means.

A segment of a water basin
where water quality does not
meet applicable water quality
standards and/or is not expected
to meet the standards even after
the application of effluent
limitations based on best
practicable control technology
or secondary treatment.

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